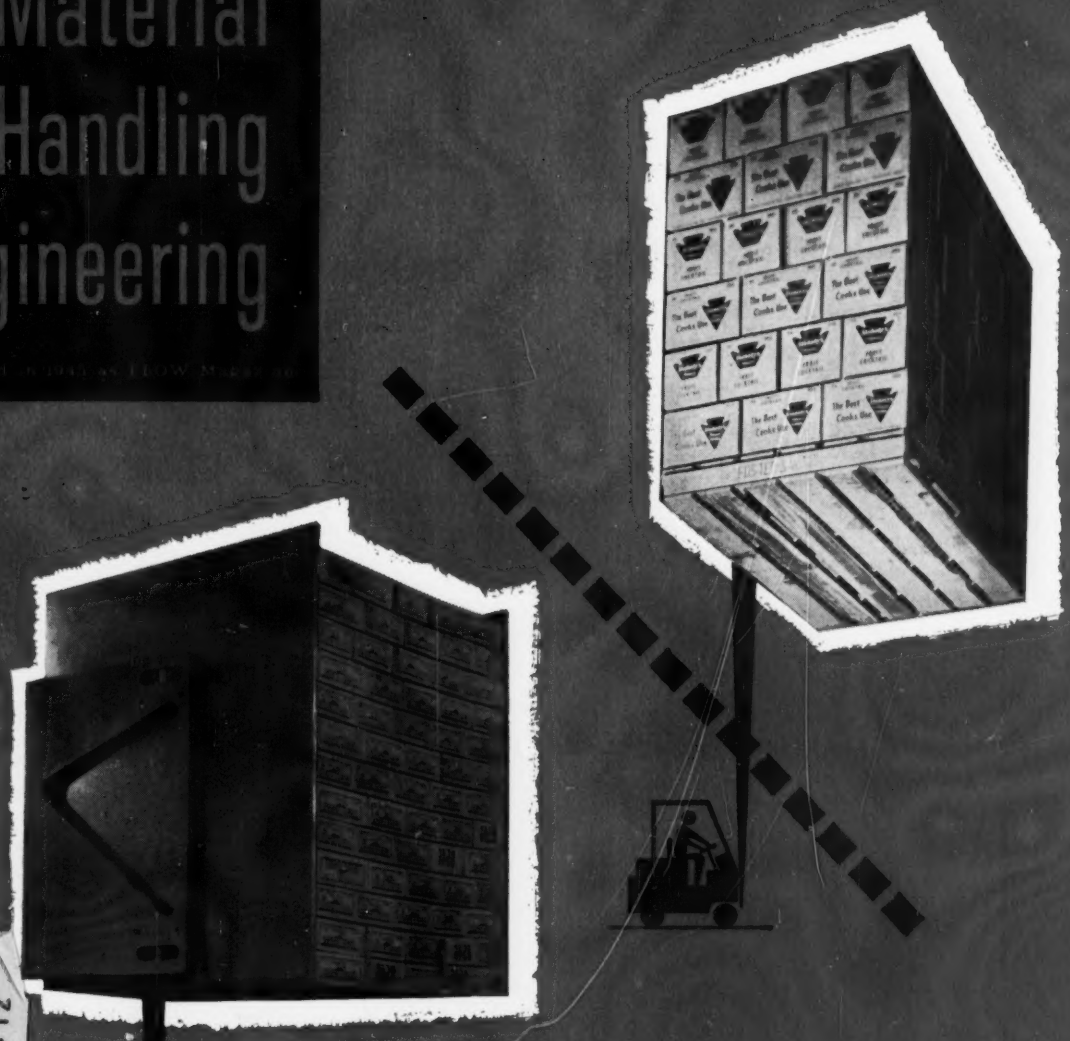
JULY 1961

Material Handling Engineering



STEVENS RICE
UNIVERSITY MICROFILMS
313 NORTH FIRST ST
ANN ARBOR MICH F12

determining the cost/efficiency ratio of palletless handling

ALSO IN THIS ISSUE: WATCH... WAIT... LIQUIDATE!
Searching For A Super-System Can Put You Out Of Business

THE MAGAZINE OF MATERIAL FLOW, PLANT AND EQUIPMENT

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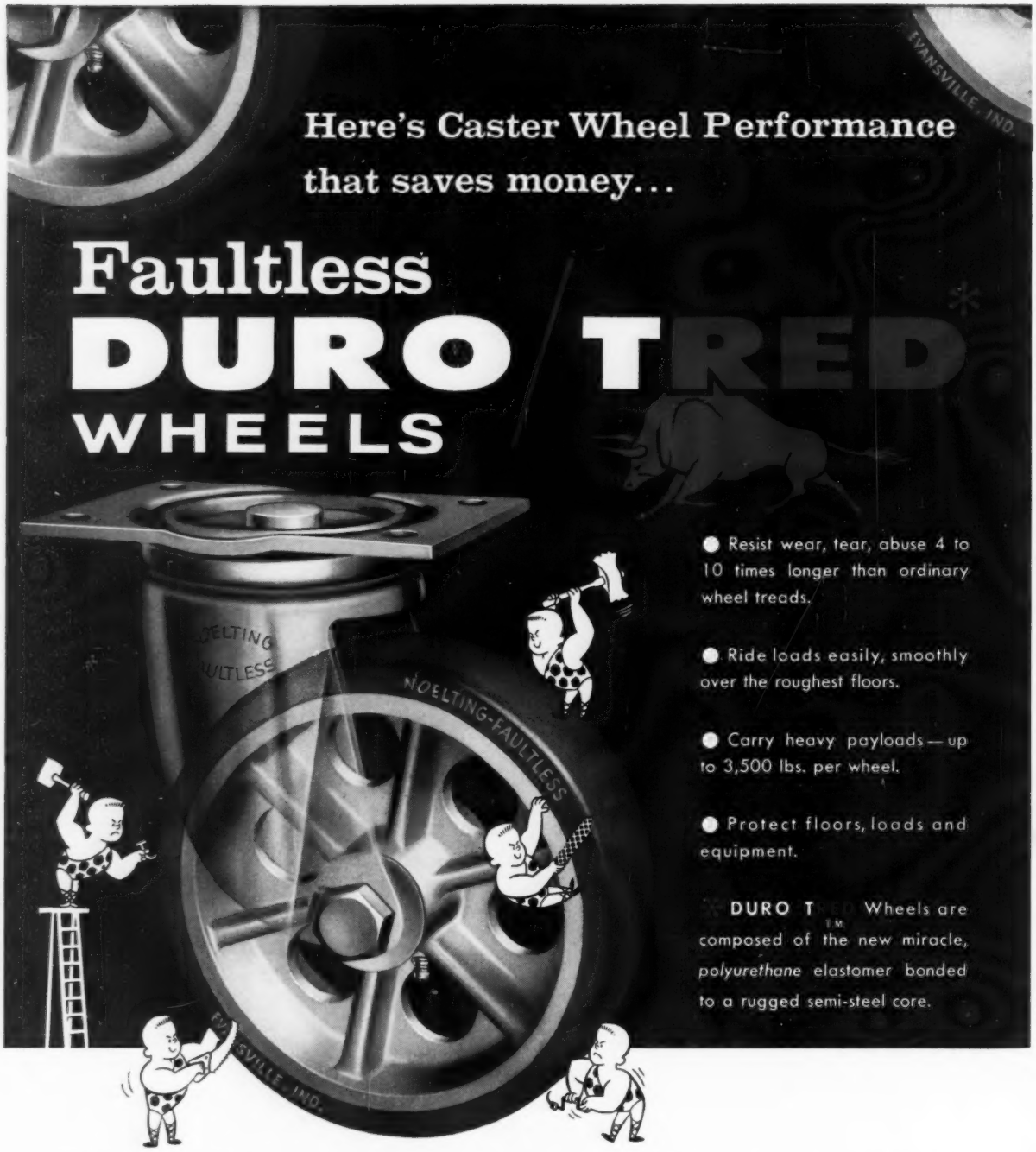
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that saves money...
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WHEELS
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NOELTING-FAULTLESS
● Resist wear, tear, abuse 4 to 10 times longer than ordinary wheel treads.
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● Protect floors, loads and equipment.
DURO T™ Wheels are composed of the new miracle, *polyurethane* elastomer bonded to a rugged semi-steel core.

With Duro/Tred Wheels, your caster maintenance costs can be chopped considerably. Special properties of *polyurethane*—strength, resilience, wearing quality—mean Faultless Duro/Tred Wheels cut costly downtime of castered equipment in your plant. New Faultless Duro/Tred Wheels are manufactured in 5", 6", 8", 10" and 12" diameter wheel sizes to fit most larger Faultless swivel and rigid industrial casters. *Free,* fact-filled literature sheet detailing specifications and sizes of Duro/Tred Wheels is available from Faultless or your local Faultless Industrial Distributor, who stocks a wide range of casters at his warehouse for immediate shipment.

Faultless Caster Corporation

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Circle 45 on Reader Service Card

NOELTING Faultless Casters

New NEOTHANE Tire can tote 2 to 4 times the load 4 times longer

Stack the NEOTHANE up against any conventional tires—under the worst conditions this remarkable Goodyear industrial "solid" will outlast the others as much as 4 times, even when lugging 2 to 4 times the load.

Secret of this unmatched toughness is a new Goodyear polyurethane development that has amazing durability combined with resiliency. Photo above taken through heavy plate glass shows that NEOTHANE tires roll over metal chips, splinters, even broken glass with virtually no gouging or cutting. They won't swell or turn spongy when driven through water, oil, grease, solvents or acids.

Tough as they are, however, NEOTHANE tires "give" enough to stand up under rough going. And they're harmless to polished floors. If your service is really tough and if your tire dollars aren't buying enough mileage, why not try NEOTHANE? Full details are on tap at your Goodyear Dealer's. Or write Goodyear, Industrial Tire Sales, Akron 16, Ohio. Remember—lots of good things come from Goodyear.

Buy and Specify NEOTHANE Industrial Tires by

GOODYEAR

Neothane—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

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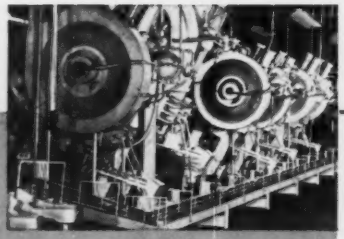
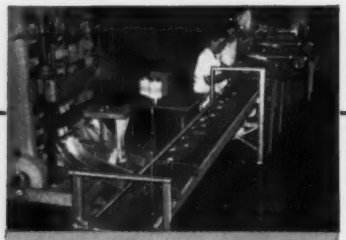
Here's a Savings Program for INDUSTRY

There's no limit to savings when you've got a Wendway Conveyor system in your plant. For, if you move *anything*—product, carton, package, part bag or assembly ... from machine to machine ... one room to another, Wendway is the one practical, economical method. Even better . . . a Wendway system will quickly pay for itself in actual, provable time, labor and equipment savings. So, if you want increased production efficiency and handling savings the easy way...remember Wendway!

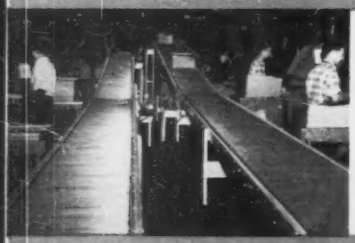


Wendway easily adapts and installs with existing equipment to speed processing and continuous flow—eliminates handling, storage and equipment.



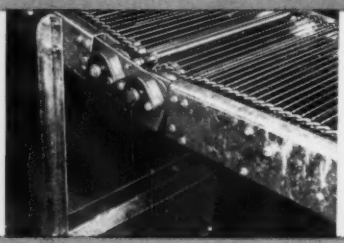
"Stub" Wendway, a short single tier unit with *regular* link-rod belting, conveys packages from bag loaders through a series of stapling and sealing operations. Installations may be permanent or portable to suit the need.

Ceiling-mounted Wendway saves floo space and proves ideal for cooling o drying operations. "Spiral" conveyo shown travels products for predeter mined period before returning then to floor level for processing.

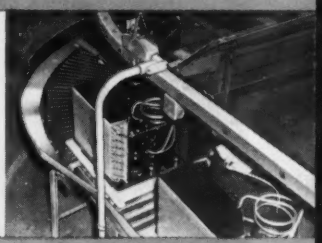


Large glass plant installed this "production line" Wendway system to convey air filters from assembly and stapling machines to elevated shipping and boxing stations.

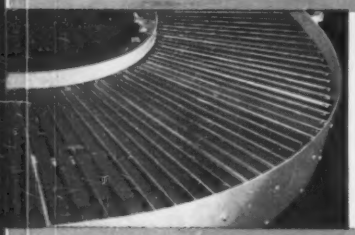
A typical package conveyor installation, this three-tier Wendway system extends the full length of the loading dock. System is fed by self-powered "roll-away" switch section (center-left).



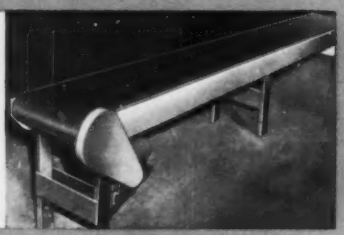
Powered transfer rollers between regular Wendway sections eliminate "dips" or "hang-ups" to conveyed products, cartons, etc. Regular link-rod Wendway belting is available in regular or stainless steel; also spring steel.



For heavy duty or difficult application, Wendway slat type conveyors are recommended. Conveyor in this installation is carrying room air-conditioners smoothly and safely.



Close-up of the powered slat curve conveyor shows how individual slats smoothly negotiate curve without variation in open spacing. Heavy duty slat type Wendway is available in powered straight sections, 90° or 180° curves.



Wendway is also available with solid belting such as Canvas, Neoprene or rubber belting to meet every need. Belting widths mix or match with *regular* or slat type units.

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Write Today...

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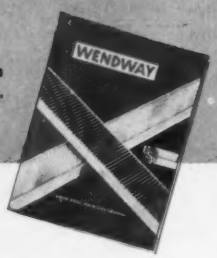

WENDWAY IS MANUFACTURED EXCLUSIVELY BY

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reader's guide to

JULY 1961

Material Handling Engineering

volume 16 number 7

Established in 1945 as FLOW Magazine

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RIGHTS ITSELF

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They're made in eight sizes, ⅛ to 4 yards capacity. Built of 3/16" steel plate with continuous arc-welded seams. Heavier plate if desired, also stainless steel or galvanized. Mounted on live skids or with a choice of wheels. Can ship standard models immediately.

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Sticky bulk materials no problem with JOY Limberollers®

Every time a Joy Limberoller belt conveyor idler turns, it flexes and cleans itself. Even the stickiest of materials like triple super phosphate never have a chance to build up and harden.

This unique flexing cleaning action is a result of the Limberoller's design. Essentially, it is a neoprene covered flexible steel wire cable. Neoprene discs are molded to the cable. The ends of the cable are swedged into bearings held in a swiveling mount. Suspended between the two bearings, the Limberoller assumes a natural catenary. This curve causes the flexing with each rotation of the idler, keeping it free of any material buildup.

If you are handling materials that are sticky, abrasive or corrosive the Limberoller can solve your problems. They can be easily mounted on your present conveyor. For more information, write for bulletin 2758-90.

JOY

Joy Manufacturing Company
Oliver Building, Pittsburgh 22, Pa.

In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario

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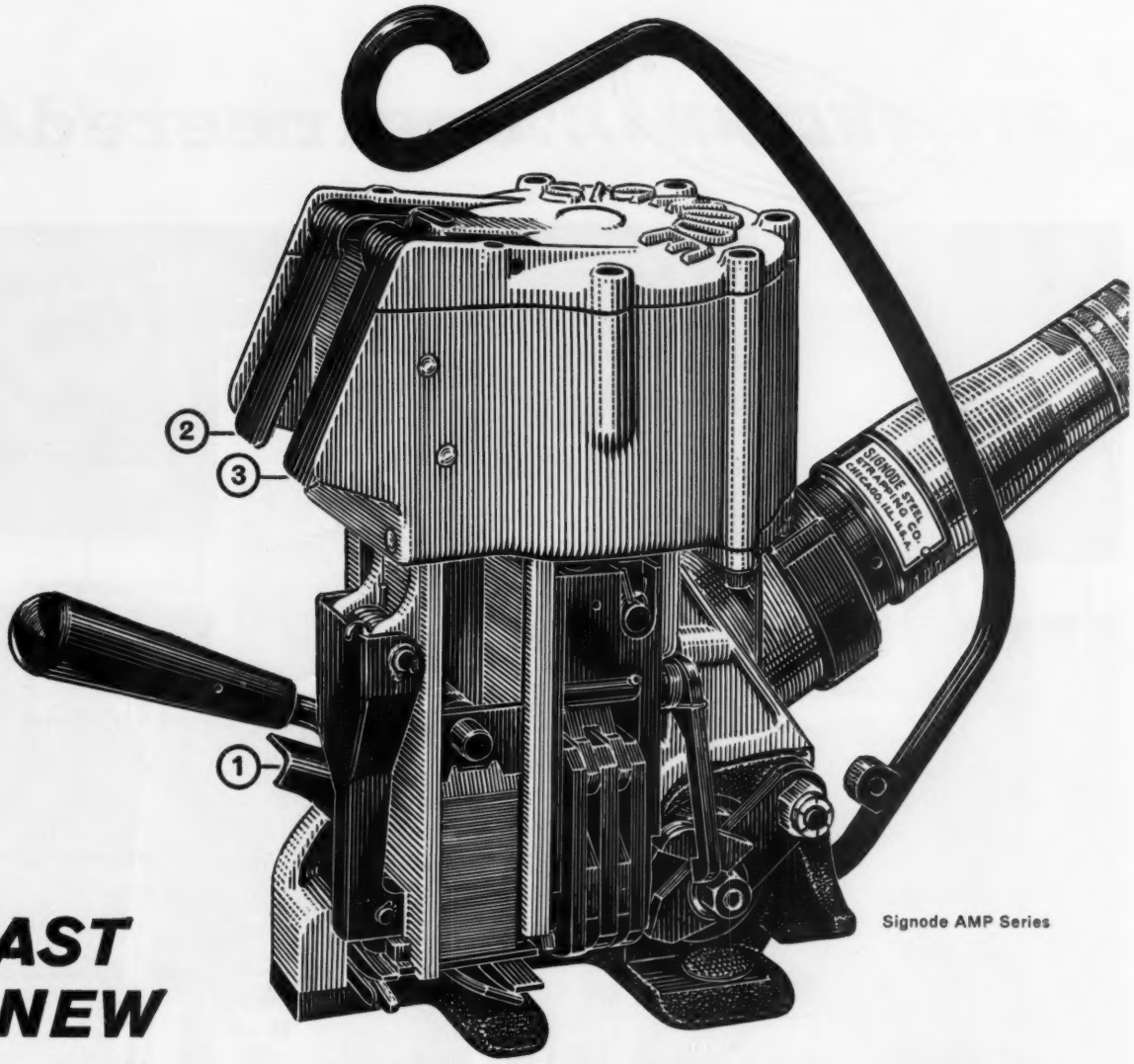

Signode AMP Series

FAST NEW all-power strapping tool

- Air power tensions, seals, and severs the strap.
- All the operator does is depress lever #1, insert the strapping, press the tensioning lever (#2), then the sealing-severing lever (#3) and remove the tool.
- Tensioning can be stopped (and held) at any time, as for the insertion of edge protectors.
- Uses new easy-loading Signode NESTACK seals that come in nested stacks (no retaining wire) that eliminate waste, spillage and delay.
- Weighs only 22 pounds, even though the base is steel for maximum durability.
- Compact balanced design and short base make tool easy to use on small as well as large surfaces.
- Comes equipped with universal suspension bracket that's quickly changed for strapping on top or side of package.
- Available now in models for ⅝″ and ¾″ strapping, .015″ to .035″ ga. Special high-tension models also available for brick, ingots, tin plate, etc.
- Tension is adjustable to 1200 lb. at 90 p.s.i., regular models.

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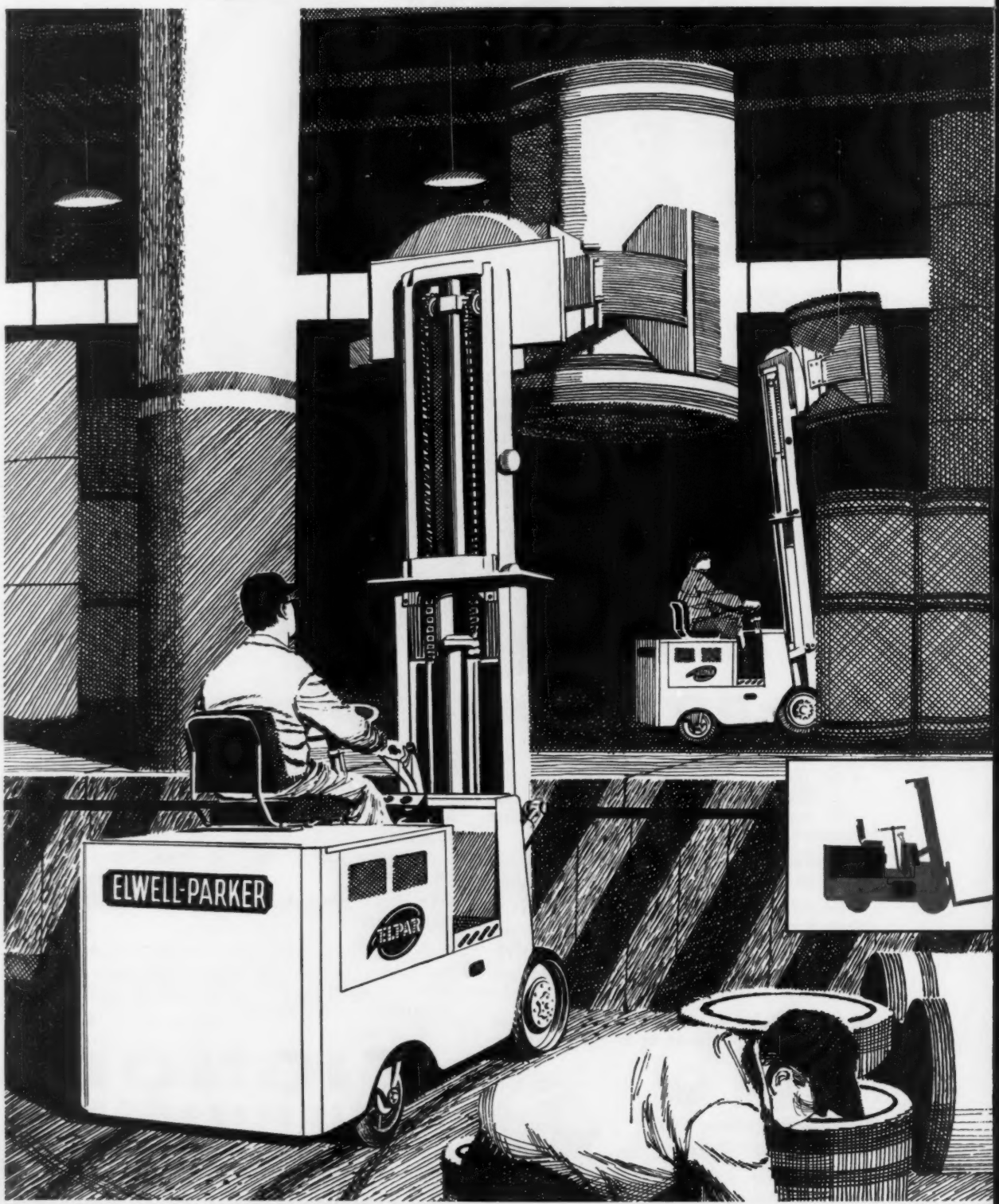
ELPAR® ...engineered to



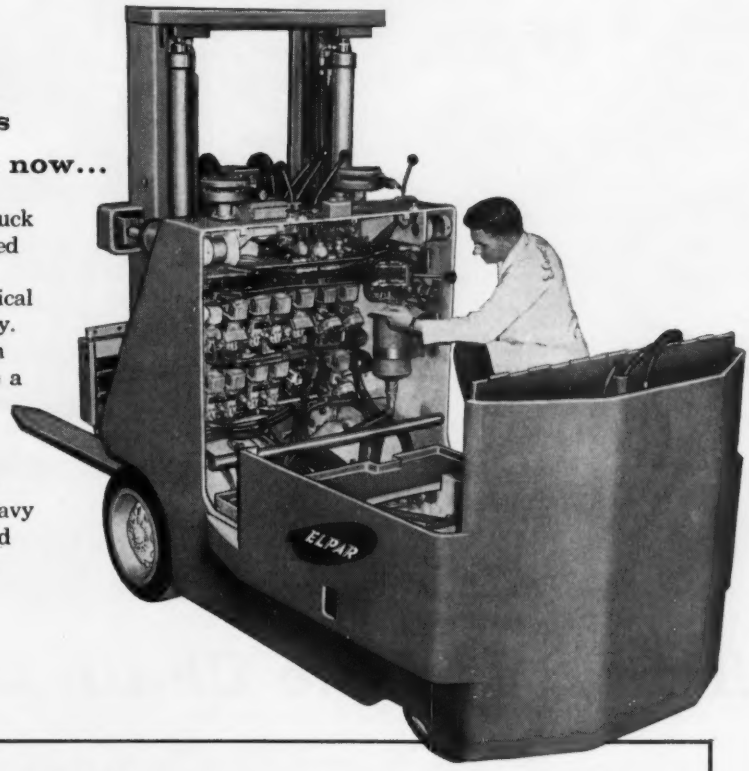
SAVE on operating costs

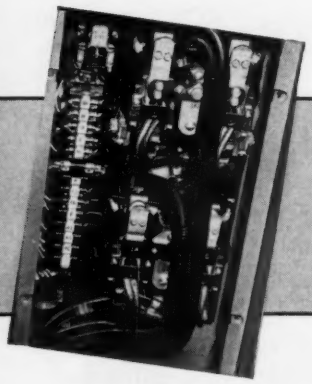
The Elpar concept of truck manufacture differs markedly from conventional standards. Performance comes first, and with it, reliability.

Quality is a tradition with Elpar. It goes down deep. Gives you the all important combination of handling efficiency plus operating economy. It affords you a far more profitable return on your investment.

Match this advanced design with the trucks you've accepted up to now...

More than 50 years of electric truck manufacturing experience blended with the very latest equipment and techniques to produce electrical circuitry of unmatched reliability. Elpar designs and builds its own electric motors. Circuits include a host of practical safety features that protect both truck and personnel. Matched electrical components conserve current to permit longer working cycles. Heavy duty contactors and wiring stand up to the toughest handling jobs.





Typical ELPAR control panel uses a pre-fab wiring harness for neat appearance and faster trouble shooting. Although easy to inspect, the entire panel is demountable and can be removed in minutes for major overhaul or bench repairs.

For more information on Elpar trucks, write for this booklet—"Special Engineering Brochure". Then call your local Elpar representative.

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TWICE THE LIFE...ONE THIRD THE OPERATING COST

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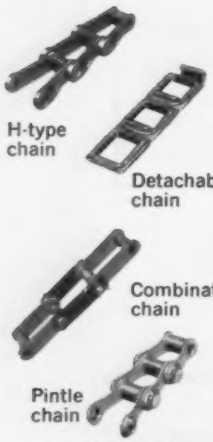

Specializing in the manufacture of chains

GET THE "EXTRA SERVICES" and save your precious time by calling your local Moline Chain distributor when you need chain for conveying, elevating and power transmission.

Your Moline Chain distributor offers much more than just a source of supply. His is a "local service business"—and he has the engineering experience and know-how to help solve your problems. He has also a crew of technical men—machinists, gear cutters, installation and maintenance men—to give you special service. And he carries a tremendous stock—as many as 7000 items—virtually any item needed for efficient power transmission.

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Leaders for 60 years

for conveying, elevating and power transmission

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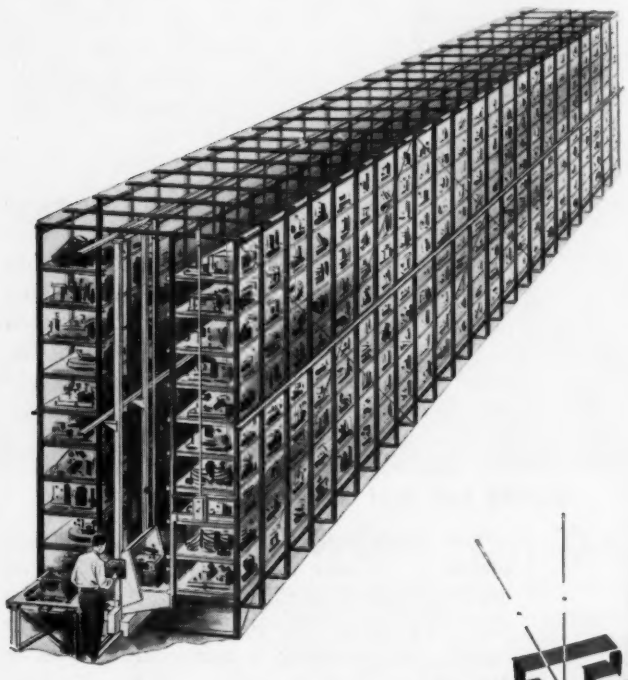
5000 tools and dies available at fingertip control

Without moving from the end of the aisle, an operator directs the movements of the TRIAX® **Retriever**® on this new two-way control console. He sets the controls to deliver one load to a vacant opening and to bring another load back at the same time.



In this sample TRIAX® **Retriever**® material handling installation, an estimated 5000 tools or fixtures could be stored at random, with immediate access to any one of them.

The standard line of 19 sizes of pre-engineered standard **Retrievers** offers great adaptability to a number of material handling and storage problems.

A **Retriever** can save large amounts of valuable floor space, utilize all air space from floor to ceiling, and often effect considerable saving in labor costs.

Retrievers are now in service in varied capacities . . . work-in-process storage, tool and fixture storage, a distribution center for finished products and finished parts storage.

We would welcome the opportunity to discuss possible **Retriever** applications in your present or future plant or warehouse.

THE TRIAX COMPANY

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NEWS ROUNDUP

Approve containerization standards

THE AMERICAN STANDARDS ASSOCIATION approved nominal lengths of 10, 20, 30, and 40 ft. for van containers with a cross section of 8 ft. by 8 ft. This was hailed as a new dimension of interchangeability for highway, maritime, and rail transportation. Still under development are standards for exact sizes of van, cargo, and pallet containers. The U. S. Maritime Administration announced that all ships designed to carry containers and for which construction-differential subsidy or government-insured mortgages are sought must be able to accommodate containers specified by the new standard.

Project Upgrade in Philadelphia

MHE's second Project Upgrade Seminar will be held in the Warwick Hotel, Philadelphia, on July 19. (See MHE, June, page 17, for a report on the first seminar in Cleveland.) Again, the subject of the seminar will be material flow management. MHE's consulting editor, E. Ralph Sims, Jr., will speak. Other seminar participants are: Dr. John Mauchly, president of Mauchly Associates; George Shay, material handling engineer, Johnson and Johnson; James A. Commins, product manager, Atronic Products, Inc.

Giant pusher-dozer

THE FRANK G. HOUGH Co.'s new Model D-500 pusher-dozer probably is the largest of its type now in production. It's part of the Paydozer line. First production model, with optional 37.5 X 33 tires, weighs 122,000 lb. The pusher-dozer was field tested for more than a year. Shown with the new giant are Hough President G. A. Gilbertson (left) and Engineering Vice President J. C. Laegeler. Gilbertson said interest in the D-500 indicates a trend toward larger, more powerful, more flexible rubber-tired units. Additional investment requirements, he said, are more than offset by speed and increased productivity. See Products News, page 78, for details on the D-500.

Still operating 50 years later

MARKEM MACHINE Co. declared a 50-year-old embossing machine winner of its search for the oldest working Markem machine. A. Werman & Sons Inc. of Norwich, Conn., shoe manufacturer, accepted a new machine in exchange for the old one, built in 1911. The old embosser, used on shoe heel pads, was found to be in good working condition, except for worn inking rollers.

PMMI show space sold out

THE PACKAGING MACHINERY MANUFACTURERS INSTITUTE Show, Nov. 7 through 10 in Detroit's Cobo Hall, has sold out all display space. Booth space of more than 98,000 sq. ft. was divided among 216 firms. Show Committee Chairman W. W. Anthony Jr. said the PMMI board decided to keep exhibit space to the present layout. Exhibits will include packaging machinery and related packaging material.

Guide for MH education

THE MATERIAL HANDLING INSTITUTE completed a 166-page Lesson Guide Outline on Material Handling Education. It's a basic instructor's guide for colleges, companies, or associations planning a course or courses in MH or industrial packaging. It has 20 units covering a vast range of topics in a loose leaf binder, includes a list of instructional aids, films, references, and such. The outline was a project of MHI's College-Industry Committee

Continued on page 12

Circle 96 ⟶

...ANY TOWMOTOR-GERLINGER TRUCK

TOWMOTOR'S ON THE MOVE—saving money, manhours and maintenance for fork lift truck users—through four special Towmotor Finance Plans. (1) Time Payment Plan enables you to buy new equipment through monthly payments tailored to specific needs. (2) Leasing Plan enables you to lease new equipment for periods up to 5 years with renewal option. (3) Leasing Plan with Purchase Option at end of lease period. (4) Renting new equipment for a period of several months or as long as equipment is needed. Towmotor supervised maintenance can be included on all Towmotor fork lift trucks —made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.

TOWMOTOR® THE ONE-MAN-GANG — GERLINGER*

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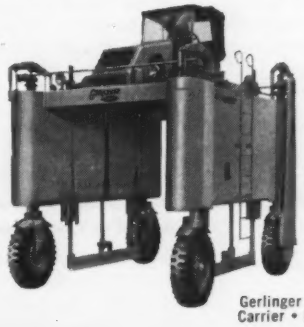
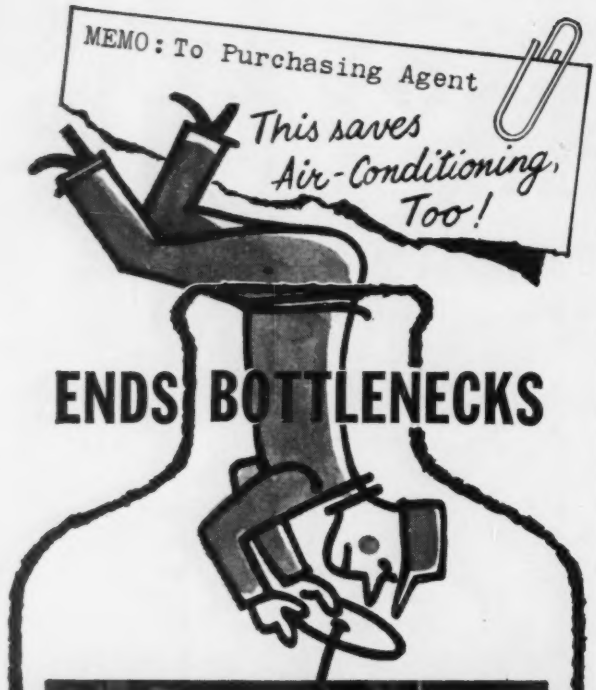
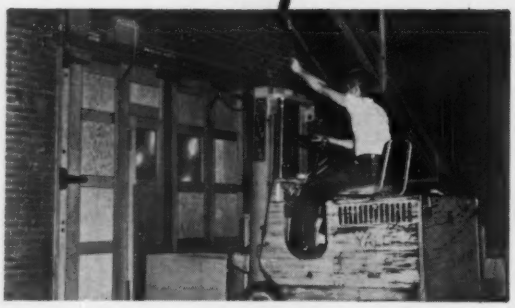
...OR ANY CARRIER



Gerlinger Material Carrier • Model 40-SH



ENDS BOTTLENECKS



The PREST-O-MATIC® Door takes the "STOP" out of "Stop and Go" traffic

Quick-acting PREST-O-MATIC works *for* you, not *against* you. Fully automatic, it prevents slow-downs and bottlenecks — saves you man hours aplenty.

Your fork truck driver simply pulls an overhead cord and goes through the opened door without stopping. The door opens and closes *Prest-O-Matically* in as little as 2 seconds. Compare this with manual doors that require your driver to stop, dismount, open the door, return to the truck, drive through . . . then stop to close the door again! Multiply this waste motion by the number of trips per day . . . per *year*.

Engineered to snug-fit your doorways, PREST-O-MATIC remains tightly closed when not in use. Neoprene Sealing stops drafts, eliminates heat loss.

Complete in one easy to install unit. No extras. Available in Bifold (shown here) and Sliding. You choose the motive power — air or electric. Before you buy any door, get all the facts on PREST-O-MATIC. See our insert in Sweet's Catalog or, better still, write us today.

CLARK DOOR COMPANY, INC. (since 1878)
514 Hunterdon St.
Newark 8, N. J.

Circle 26 on Reader Service Card

NEWS ROUNDUP

on Material Handling Education. It costs $5 a copy for MHI member companies; $20 to others. Professors, writing on college letterhead, may have a complimentary copy.

Packaging competition announced

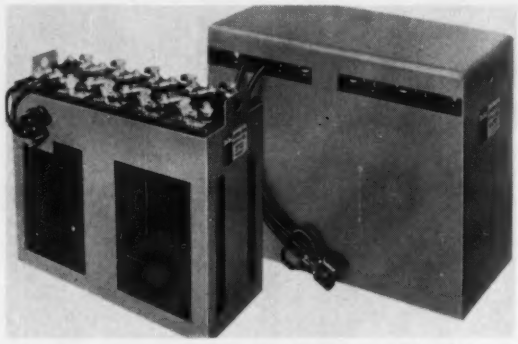
THE 1961 INDUSTRIAL PACKAGING COMPETITION, sponsored by the Society of Packaging and Handling Engineers, will be held in conjunction with the Seventh Annual Eastern Packaging and Handling Show. The show will be Nov. 13 and 14 in Baltimore. General chairman of the packaging competition is Joseph L. Krager Jr., Radio Corporation of America.

Offers MH training seminars

TRAIN YOUR EXECUTIVE, engineering, and operating personnel to use the latest principles and practices of material handling management. You can learn how in a three-day seminar offered by E. Ralph Sims Jr. and Associates, consulting industrial engineers and management consultants. Ralph Sims is the author of MHE's Project Upgrade series, and is consulting engineering editor. Sims speaks on the systems approach, ties it in to your plant, discusses solutions to problems brought up by those taking the course. Write Sims at 436 N. Maple St., Lancaster, Ohio, for more information.

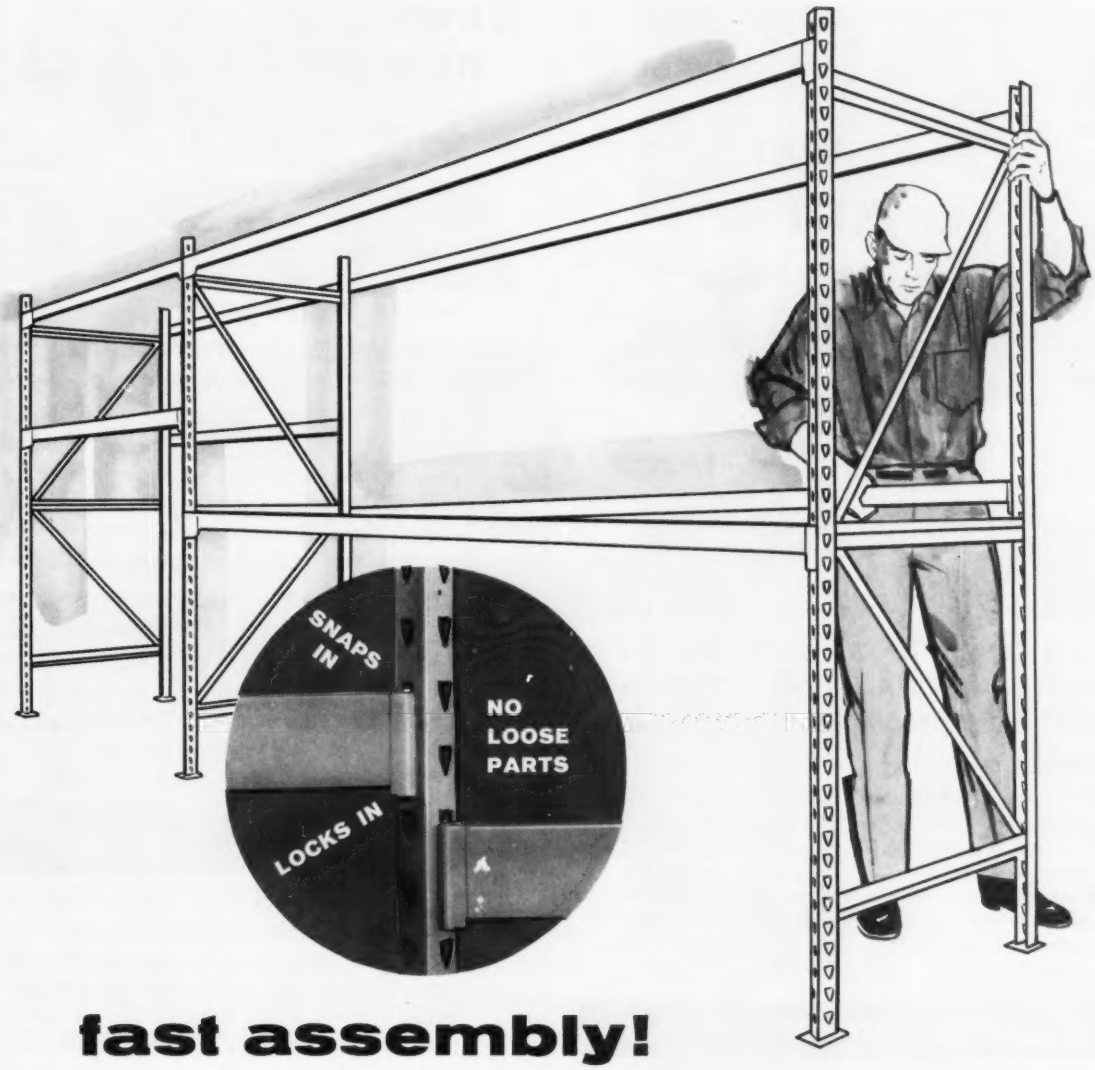
Guarantees battery for life of truck

EXIDE INDUSTRIAL MARKETING DIVISION, The Electric Storage Battery Co., guarantees users of low-lift electric hand trucks against replace-



ment of motive power batteries for the life of the truck. This covers only the new nickel-iron alkaline batteries. The guarantee states that the batteries will provide 80 percent of rated

Continued on page 14



fast assembly!

EMI *air-row head pallet racks*

only 2 basic parts—fast assembly—easy to relocate.

EMI *air-row head DRIVE-IN RACKS*
EMI *air-row head DRIVE-THRU RACKS*

These strong, efficient, space-saving racks are all engineered on the AIR-ROW Head principle with basic interchangeable parts.

EQUIPMENT MFG. INC.

21552 HOOVER ROAD • DETROIT 5, MICHIGAN

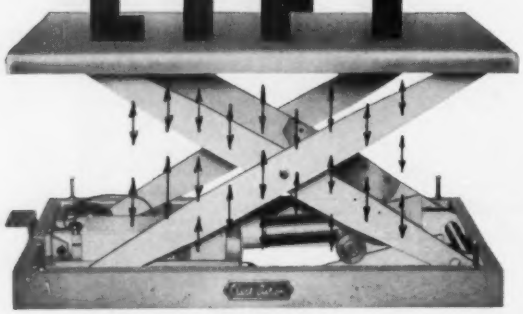
Before you build, remodel or add to a storage area, FIND OUT ABOUT AIR-ROW HEAD RACKS

WRITE FOR DETAILED INFORMATION

YOU CAN STACK ANYTHING ON **EMI** RACKS

Circle 41 on Reader Service Card

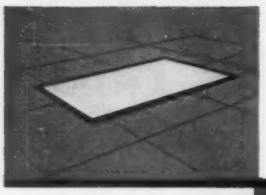
EASY WAY
TO GET A
LIFT



FOR LOADS UP TO 6000 LBS.—IN MATERIALS HANDLING SYSTEMS OR FOR CONVENIENT PORTABLE USE

Standard sizes afford a wide selection of heights that readily adapt them to changing requirements—from floor level to a height of 48" and will lift up to 6000 lbs. depending on the unit. Control is fast and sure for any height positioning and with electronic accessories automatic positioning is available. Special cradle tops are available for handling paper rolls and other cylindrical materials.

Clark-Aiken STANDARD LIFT TABLES

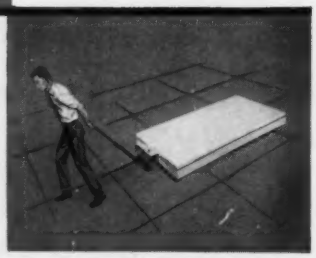


FLOOR LEVEL INSTALLATIONS WITH SAFETY TOE GUARD

Tables may be flush floor mounted with disappearing toe guards for safe operation.

EASY TO MOVE FOR PORTABLE USE

Portable unit is wheel mounted; makes easy mobility around the shop for your requirements.



Send today for informative bulletin. Tell us your requirements and we will recommend table size.

THE Clark-Aiken COMPANY
105 HART ST. LEE, MASSACHUSETTS

Canadian Representative: Gordon W. Keates
133 Flora Drive, Scarborough, Ontario
Circle 19 on Reader Service Card

NEWS ROUNDUP

electrical capacity in one-cycle-a-day service for the life of the trucks. All Exide requires is that users charge and maintain the batteries properly with approved equipment. Any nickel-iron alkaline battery that fails to deliver 80 percent of rated power will be repaired or replaced free, says Exide.

New lumber loading approved

THE AMERICAN ASSOCIATION OF RAILROADS authorized unrestricted use of a new flat car lumber load developed by Signode Steel Strapping Co. in cooperation with shippers and the association. The system eliminates custom-fitted ladder braces and trusses to fill out cen-

ter gaps, needs only four pairs of stub stakes. Lumber packages are tied together with pile straps and load straps, around a series of vertical T-fillers and horizontal separators. This permits the load to float as a unit under impact. Longitudinal guide rails against each side prevent side movement. A study shows a shipment can be unloaded for as little as 5.4 cents a thousand board feet. Loads make up quickly.

Postmaster asks handling aid

POSTMASTER GENERAL J. EDWARD DAY asked industrial engineering and research talent to help solve fantastic mechanical problems of mail movement and delivery. He suggested these areas of concentration:

- A simple machine to read, face, and sort mail chemically or electronically.
- Flexible, variable stamp dispensing equipment.
- A basic machine to sort mail by states.
- Mail boxes to stack letters on the spot.
- Package sorters free from Rube Goldberg devices and squads of hovering mechanics.

"We have no interest in gimmicks or gadgets," he said. "We have no interest in blue sky projects full of ifs for the millenium of another century. We need help to do it better today."

Continued on page 16

CRANE DESIGNERS
CRANE BUILDERS
CRANE Counselors

Since 1910

In designing and building cranes since 1910 this company has adhered to a policy of thoroughly studying each problem presented from the standpoint of conditions faced and service to be rendered in order to recommend the proper type of crane and equipment.

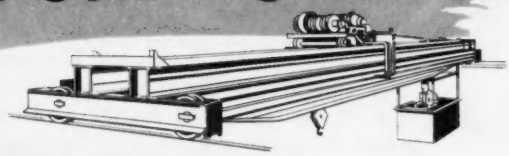
Growth in future demands is also considered and it is significant that some of the first Euclid Cranes manufactured are still in service. Impressive, too, is an uncommon record of repeat orders.

Euclid has the experience to study needs and render sound counsel to crane user; also engineering personnel and factory facilities to translate the facts obtained into equipment of the highest order.

You are invited to avail yourself of this counsel and can do so without entailing any obligation.

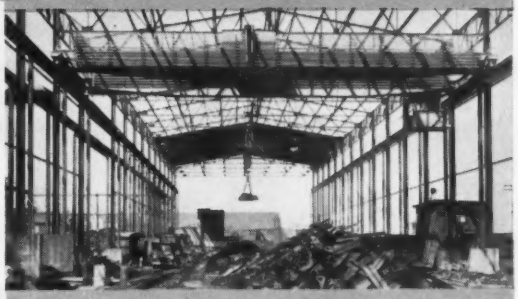
The EUCLID CRANE & HOIST Co.
EUCLID, OHIO

Euclid Cranes



ELECTRIC HOISTS, Also

Euclid Overhead Crane and Semi-Gantry Crane serving the assembly floor of a large machinery manufacturer.



Outdoor Crane equipped with two hoists; also facilities for operating both magnet and scrap iron grapple.

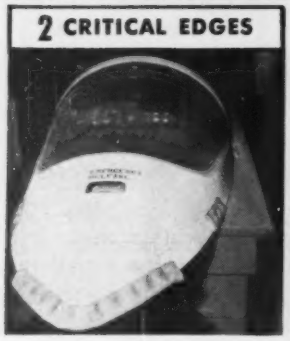
Indoor-outdoor, center controlled crane operating in a large shipbuilding plant.

Underslung, floor controlled crane designed to afford maximum use of a material warehouse.

Circle 42 on Reader Service Card

New Use-Reports Show

HOW EDG-PAK PREVENTS DAMAGE, SAVES MONEY!



1 **Nested Automobile Stampings.** Sharp flanges don't sheer or punch through Edg-Pak's "Strength of Steel" wire inner construction. Adjoining surfaces are fully protected. Edg-Pak doesn't fall off . . . Spring-Grip holds tight—speeds up handling—reduces manpower needs!

2 **Critical Aircraft Edges.** Edg-Pak slips over edges fast. Spring-Grip holds securely. Cushioned 3-way "Strength of Steel" construction improves top, bottom and side protection of critical edge. Reduces damage, speeds handling—Edg-Pak's "Strength of Steel" saves labor and materials!

3 **Steel Strapping.** Prevents sharp edges from cutting through to damage corners or printed surfaces. "Velvet Glove" cushioning prevents marring or scratching. Spring-Grip speeds up both "spot" and length protection applications.

WRITE TODAY!

For New EDG-PAK Card with Sample Materials, Specifications, Price List

FLEX-O-LATORS, INC.,
Carthage, Missouri MHE-5

YES! I want new EDG-PAK Samples, Specifications and Price List!

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

Circle 48 on Reader Service Card

NEWS ROUNDUP

Continue development of Project 463L

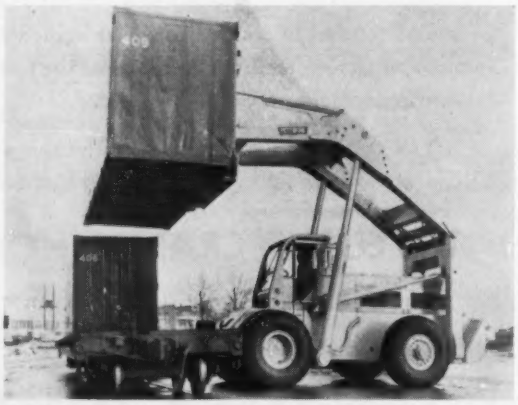
GOODYEAR AIRCRAFT CORP. received a $634,000 contract to design, test, and build pallets and tie-down nets for Air Force Project 463L, material handling support system. Pallets, made of the firm's sandwich structural material, will be 88 x 108 inches. They'll hold 10,000 lb., fit special rails in transport aircraft and handling equipment.

Weigh accurately at receiving

TOP WEIGHTS AND MEASURES OFFICIALS advise companies to checkweigh receipts accurately or pay a penalty of reduced profits. This came out in a nationwide survey conducted by the Scale Manufacturers Association. The survey indicated that incorrect weights at receiving can lead to incorrect accounting, cost control figures, and impairment of quantity control. Association Executive Secretary Arthur Sanders said the survey implied no dishonesty. But, mistakes can happen, coupled with loss in transit, from pilferage, or other shortages, he said.

Pneumatic tires on cargo loader

THE TRANSITIER 35-ton-capacity cargo loader operates on pneumatic tires. It uses six B. F. Goodrich tubeless tires, 18.00 by 25, with 28-ply rating. Non-directional tread provides proper tractive effort, load balance, and lateral



skid resistance. Photo shows vehicle loading containers on flatcar in Alaska. The tires, inflated at 90 psi, support the loaded vehicle with deflection of about 16 percent. The vehicle also uses Goodrich Hi-Torque brake built into the axle. It operates with nearly constant lining pressures, gives equal torque in forward and reverse without grabbing.

STANDARD REPUBLIC MATERIAL HANDLING PRODUCTS SIMPLIFY CONTAINERIZATION

Moving raw materials through production lines to shipping is faster, easier, more economical, with standard Republic Material Handling Units... key to *containerization.*

Strong, sturdy, Republic Units are designed and produced to withstand abuse of everyday, workday service. Many special material handling problems can be solved from Republic's full line of standard units, at big savings for you.

Let the material handling engineers of Republic's Berger Division work with you in solving your material handling problems. For further information, contact your nearest Republic sales office, or write Republic Steel, Department A-1939-A, 1150 Belden Avenue, Canton 5, Ohio.

Strong Modern Dependable

REPUBLIC STEEL

REPUBLIC HAS THE FEEL FOR MODERN STEEL

Circle 89 on Reader Service Card

When the giants fall...

"At 6:45 a.m. tomorrow, we'll go to work cutting this stand. We'll load the logs, charge the mill, work the drying yards, load the freight cars and ships. We'll handle this redwood spruce 23 times—in mud, over rough ground, in all kinds of weather.

"When you're in the business of moving materials—whether it's lumber, steel or any other—the equipment makes the difference. That's why we demand fork lifts that will stand up. That's why we buy Clark."

CLARK® EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek, Michigan

For full details
see your local Clark Dealer,
or Circle 77 on reader service card

THE BIG WHEEL

with lots of Pull for your heaviest loads

Here's a close-up of the MONOTRACTOR — a deluxe, durable MonoRail drive system that's built for dependability and cost saving performance.

That spring loaded rubber tire drive wheel rides any smooth bottom track with the dependable traction needed to take heavy loads up inclines, down inclines or around curves. Track flanges and wheel treads wear indefinitely because wheels do not slip or spin and no extra weight is needed for traction.

Automatic Handling with Monotractors

Use Monotractors with:

1. **Station Selectors**
2. **Selective Automatic Switching Devices**
3. **Electrical Block Systems**
4. **Automatic Trains**
5. **Automatic Loading Devices**
6. **Automatic Selective Discharge Systems**
7. **Cycle Control Panels**

Write for Bulletin C-2

ENGINEERED MATERIALS HANDLING

1129 EAST 200th STREET CLEVELAND 17, OHIO

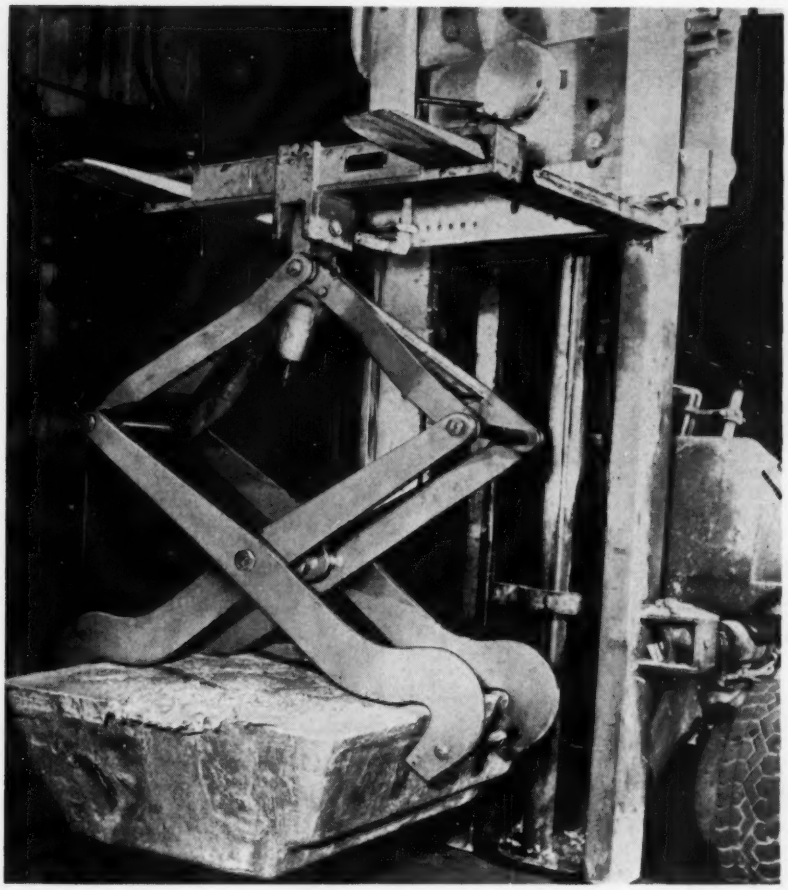
AMERICAN MONORAIL

DIVISIONS: Conveyor Division, Tipp City, Ohio — Canadian Monorail Co., Ltd., Brampton, Ont.

Circle 3 on Reader Service Card

COST CUTTING IDEAS

Special Tongs Speed Aluminum Sow Handling



The Cupples Products Company Division, Aluminum Company of America, in St. Louis picks up aluminum sows (solid pieces of aluminum weighing 600 lb.) in an open yard, carries them into the shop, and gently deposits them in a furnace charging box. They have no overhead crane or hoist equipment in the yard.

They use a pair of automatic tongs with an upper frame work to engage in the tines of a fork lift truck. The bottom levers of the tongs fit around a sow, hold it firmly and safely while lifting it. The tongs are quickly attached or removed, do not interfere with the use of the fork lift truck for other lifting jobs.

On arrival near the furnace, the fork lift operator raises the tines to position the tongs and sow above the charging box. Then he lowers them so that the sow rests on the floor of the box. This makes the tongs open. An automatic mechanism latches the arms open, ready to lift another sow when the truck returns to the yard.

With their arms latched open, the tongs extend only 28" below the tines. The tongs weigh only 370 pounds, have a capacity of 1,100 lb. and a maximum opening of 38". —*Materials Handling Division of Heppenstall Co.*

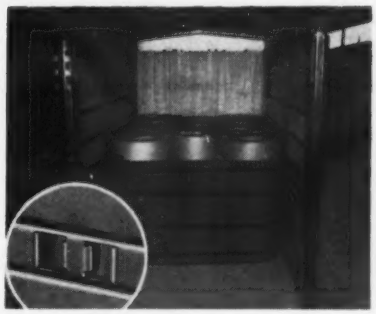
Circle **250** on Reader Service Card

Newsprint Rolls Ride Safely

Paper companies report that Safe-Cargo anchoring systems are fine for shipping huge rolls of news print and other paper products.

Kimberly-Clark Corp. of Niagara Falls, N.Y. says "To ship paper rolls safely and without damage, the cars' walls and floors must be smooth to prevent chaffing and snagging, especially to the roll ends."

Safe-Cargo cars meet these requirements, and have the added advantage of providing hundreds of anchoring stations for a strapping in all kinds of loads. The system requires little dunnage, and the cars unload quicker. There's no need for strapping cleats, which reduces the chances of snagging.

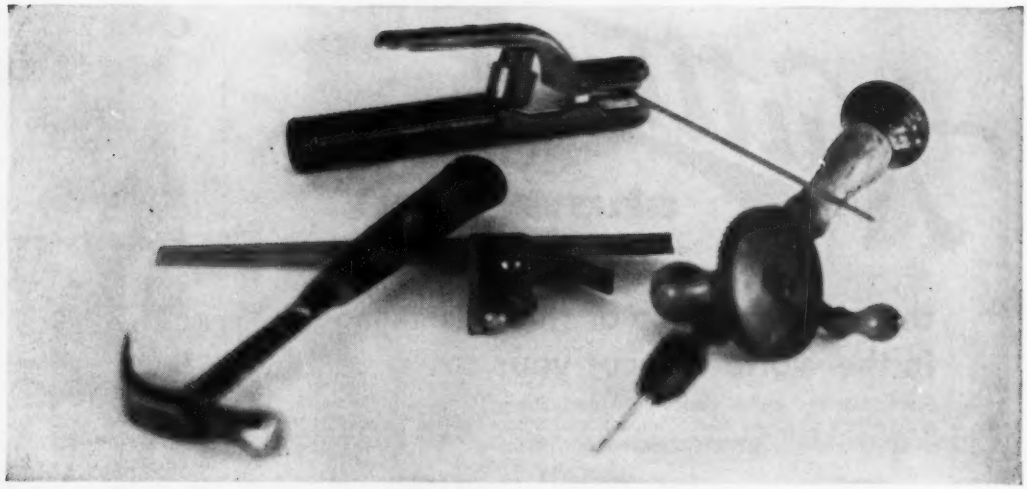


Other advantages: fast installation of anchoring stations, flush walls.— *Youngstown Steel Car Corp.*

Circle **251** on Reader Service Card

Continued on page 24

AIM BRAND SLOTTED AN



NCOMPLICATES YOUR CONSTRUCTION

Shear it to size, grab a wrench—and *go*. That's how easily structures take shape with Acme Steel's AIM Brand Slotted Angle. Storage racks, mezzanines, platforms, stairways, tables and carts, literally any type and size equipment, can be bolted together in record time—without a king's ransom in tools and talent. Slotted angle, an AIM Brand Cutter, a wrench, nuts and bolts are the only materials needed.

There's no figuring and finagling to fit pieces. Slots and holes, in a precise recurring pattern, line up with flawless accuracy. You needn't tie-up skilled personnel. Regular labor can master this complication-free assembly in minutes. And steel or aluminum AIM Brand Slotted Angle carries its load for keeps. The perfect-fit connections won't budge, buckle, wrack or crack.

An Acme Steel Exclusive—Ready-to-Assemble Kits

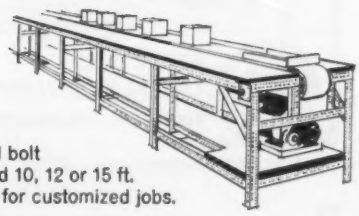
As an added convenience, over 200 popular types and sizes of structures are now available pre-cut, ready-to-assemble. Your local AIM Brand distributor has all the facts and figures. Or, send for your free copy of the new fully illustrated idea booklet, "Creative Framing at Lowest Cost." Write: Acme Steel Company, Dept. MEC-71,135th St. & Perry Ave., Chicago 27.

ACME STEEL

IDEA LEADER IN

FRAMING · STRAPPING · STITCHING

Slotted Angle Kits offer new convenience and economy in pre-cut form.



Cut and bolt standard 10, 12 or 15 ft. lengths for customized jobs.

Circle 1 on Reader Service Card

Nutting shows you "HOW"...

the widest choice of floor trucks in the world can cut your costs!

For regular or "special" design floor trucks it pays to talk to Nutting *first*. Here's why: no other company makes more models, sizes or combinations of equipment than Nutting. Many times items which you may find listed as "specials" with other makes are regular equipment in Nutting's complete line. As a result you get "custom built" trucks at production line prices. You not only get overall lower prices; you also get the benefit of 68 years of experience, design "know-how" and modern manufacturing skills. To save valuable hours of your time and get the right equipment for your plant, talk to a Nutting representative *first*, for all your floor truck needs!

Nutting makes over 1000 products, here are just 16 of them

For appliances and finished products

Wagon trucks up to 10,000 lbs. capacity

All types of dollies for boxes & cases

For sub-floor & overhead drag lines

Trailers — up to 7,000 lbs. capacity

CASTERS — all types

WHEELS — demountable rubber tired, solid rubber, plastic & metal

Shelf and tray trucks

2 wheelers for freight

Steel & aluminum frames for cases & cartons

Drag line trucks & trailers for palletless handling

Non-tilt platforms — Wood & steel frames

Shelf trucks for sub-assemblies

Dollies for cylindrical & odd shaped items

Triform & box trucks for packages & bundles

"Auto-Load" barrel & drum trucks

Tilt style platforms — Wood & steel frames

Dollar for dollar, feature for feature Nutting is your best floor truck buy. Write for your free copy of new Junior Catalog 59G.

Nutting

TRUCK AND CASTER COMPANY
Faribault, Minnesota

NUTTING TRUCK & CASTER COMPANY
104 Division Street • Faribault, Minnesota
Please send copy of Junior Catalog 59G.

NAME_____
COMPANY NAME_____
ADDRESS_____
CITY_____ STATE_____

Circle **75** on Reader Service Card

COST CUTTING IDEAS

Modular System Protects Small Parts

They protect expensive small parts from shock and dirt during storage and assembly at Viking Corp., Newbury Park, Calif. The Company has a versatile Modubox system.

During storage, the individual Modulboxes slide into adjustable

floor-to-ceiling racks. Lips on the boxes fit cleats on the racks. No shelves are needed. Ticket-holders permit easy coding of contents.

The boxes, made of durable thermoplastic, nest and stack, come in 8 standard sizes in a variety of depths. They fit most standard rack systems, can be easily adapted to special installations.—*Hollywood Plastics, Inc.*

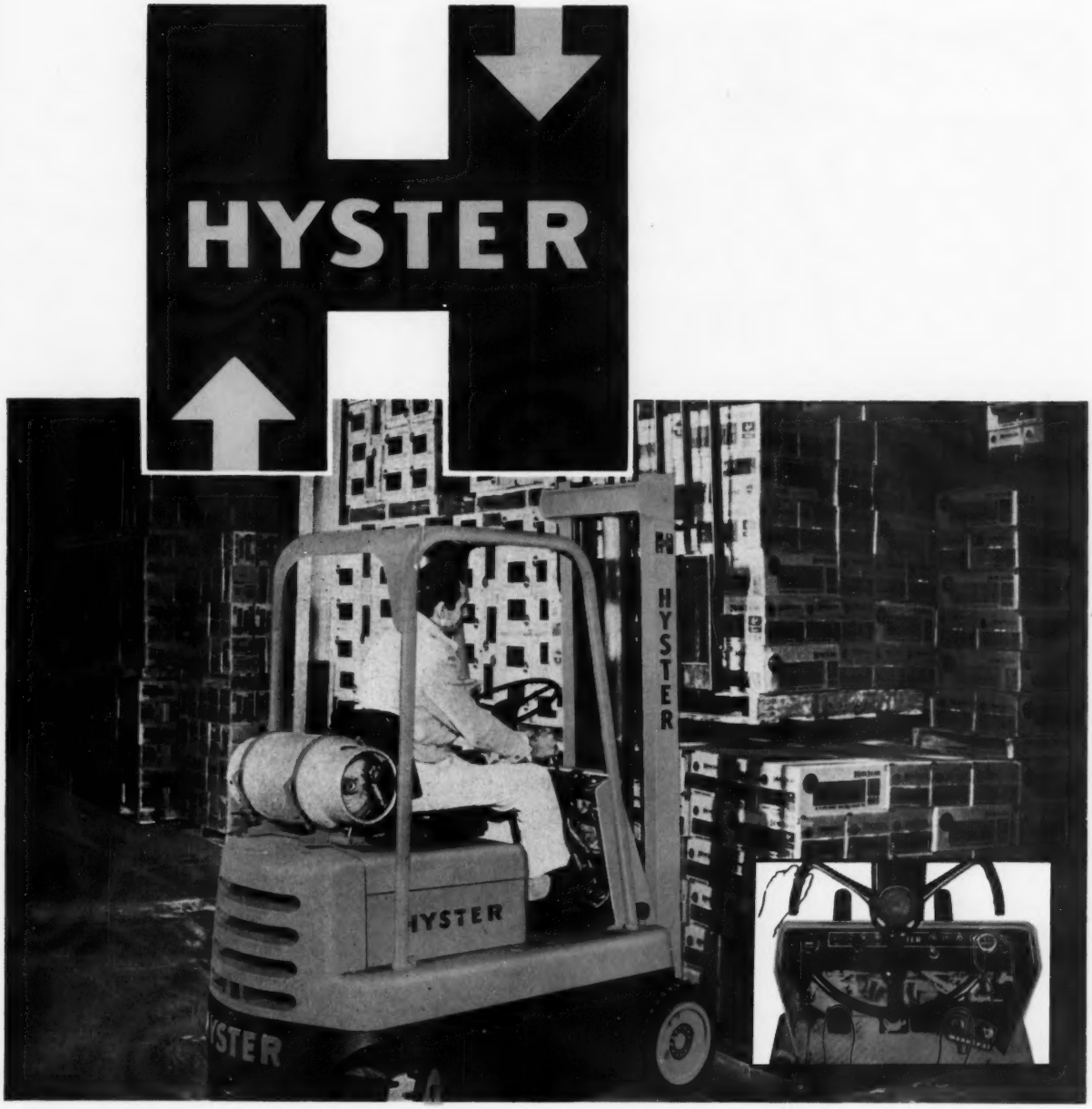
Circle **252** on Reader Service Card

Skin Packaging Proves Economical, Safe

A thermoformed skin package has sales appeal, protects the product and customer. The Jacobsen Mfg. Co., Racine, Wis. uses it in the merchandising of lawn mower replacement parts.

They package rotary mower cut-

Continued on page 26



monotrol speeds handling for Pillsbury Mills —

Only HYSTER® has it!

The Pillsbury Company uses Hyster lift trucks with Monotrol control for safe, rapid handling in their Hamilton, Ohio warehouse.

Drivers like the easy, natural coordination of Monotrol – with all driving functions foot controlled except steering.

Right foot Monotrol pedal controls power–forward-reverse – Hystamatic transmission. Left foot controls brakes and truck inching. Hands are free for steering and load control.

Safest, easiest trucks to drive. Quickest to service.

Call your Hyster dealer or write for literature.

INDUSTRIAL TRUCK DIVISION—Lift trucks, mobile cranes, straddle carriers
TRACTOR EQUIPMENT DIVISION—Construction and logging equipment
MARTIN TRAILER DIVISION—Heavy machinery hauling trailers
INTERNATIONAL DIVISION—Overseas manufacturing, sales and service
Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill.
Australia • Brazil • England • France • The Netherlands • Scotland • Union of South Africa

HYSTER COMPANY
INDUSTRIAL TRUCK DIVISION
P. O. Box 847 • Danville, Illinois

Circle **56** on Reader Service Card

This easy-opening reusable aluminum top, developed by the Central States Can Corporation, is now available on Cleveland Container fibre cans — a natural for packaging spare parts as well as a wide range of products! It protects the contents from air, moisture and dust. The peeling off of the tabbed seal leaves a smooth edge permitting a snug fit when the top is replaced.

Containers Engineered to Exact Product Needs!

Durable fibre containers can be made to almost any specification — *and at a surprisingly low unit cost!* Moistureproof, greaseproof, and anticorrosive liners for added protection. A wide choice of labels for distinctive identification.

Two Diameters Ready for Immediate Delivery!

An important advantage exists for products which can be packaged in containers with inside diameters of 2⅜" and 3⅞" — two of the most popular sizes.

Write for our latest Packaging Brochure.

THE

CLEVELAND CONTAINER

COMPANY

Plants and Sales Offices: Cleveland, Chicago, Memphis, Dallas, Los Angeles, Plymouth, Wis., Jamesburg, N. J., Greensboro, N. C.

6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED
Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

Sales Offices: Detroit, New York City, West Hartford, Rochester, N. Y., Washington, D.C.
•
Abrasive Division at Cleveland

Circle **28** on Reader Service Card

COST CUTTING IDEAS

ter blade attachments and sets of special nuts and bolts in the packages that utilize a polyethylene coated acetate.

The plastic sticks right to the uncoated, unperforated paperboard

backing. They heat the film to near melting, then apply it to the goods. They draw a vacuum through the paperboard. The film quickly cools, shrinks tightly around the goods.

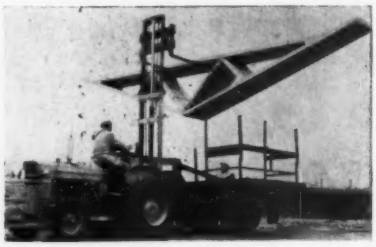
Jacobsen says they now use no coated and perforated paperboard stock. Comet machinery does the packaging. Each package has a hole at the top for hanging on large display panels.—*The Dobeckmum Co., Division of The Dow Chemical Co.*

Circle **253** on Reader Service Card

Tractor-Forklift Cut Handling Time

Trendway, Inc. of Crystal Lake, Ill. makes roof trusses, wall components, prehung doors.

They formerly used a pole handling truck to carry the trusses. Today, the trusses go from factory



to trucks on a tractor equipped with a Harlo forklift.

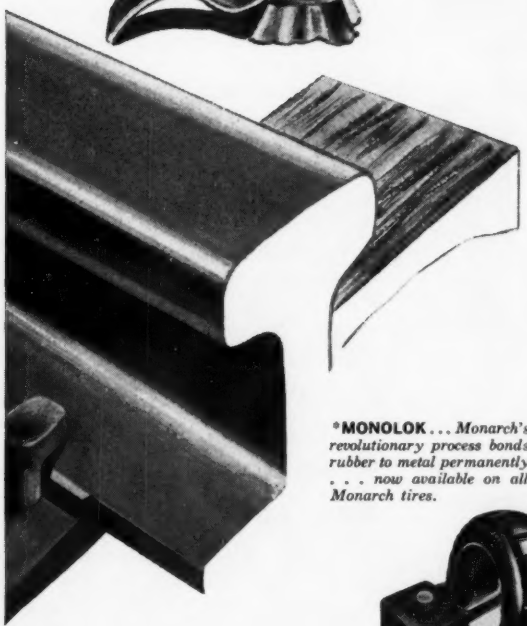
Trendway cut handling time 50 to 75 percent from the pole method. The tractor and forklift also handle raw material in and out of the plant.—*International Harvester Co.*

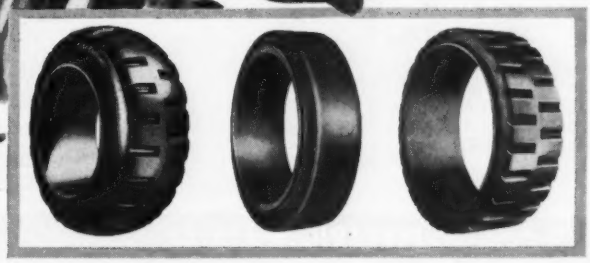
Circle **254** on Reader Service Card

Continued on page 28

counterattack

THE ENEMIES OF SOLID TIRES!



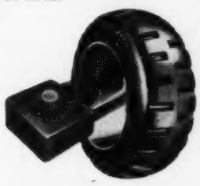


NEW MONOLOK* PROCESS DRASTICALLY REDUCES MAINTENANCE AND REPLACEMENT COSTS!

Here's your secret weapon against those old enemies of solid rubber tires . . . loose metal scrap . . . brine and acid solutions . . . rough surfaces . . . overloaded conditions and excessive heat. Monarch tires with MONOLOK* process are chemically bonded to the rim and offer unmatched protection against rim separation . . . the most common cause of solid tire failure. Tough new compound T-5100 rubber gives Monarch tires excellent wear resistance . . . increases tire life . . . eliminates excessive maintenance and early replacement. Press the attack against high tire costs. Install Monarch MONOLOK* process tires without delay.

FOR ADDITIONAL DETAILS . . . please write direct and request Bulletin 457 B.

***MONOLOK** . . . *Monarch's revolutionary process bonds rubber to metal permanently . . . now available on all Monarch tires.*



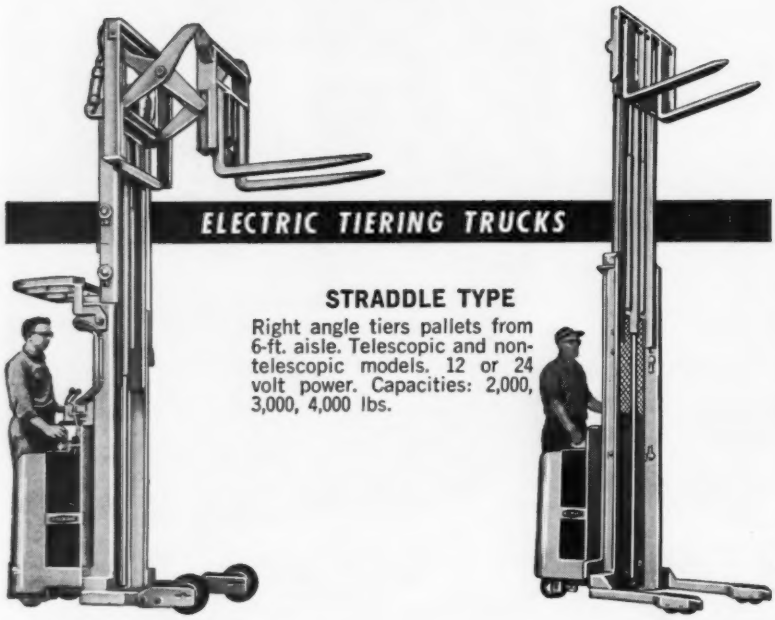
SOLD THROUGH LEADING LIFT TRUCK DEALERS

THE **MONARCH** RUBBER COMPANY
210 LINCOLN PARK • HARTVILLE, OHIO
• 923 Fisher Bldg., Detroit 2, Mich.
• 4140 West Fullerton, Chicago 39, Ill.
• Western Warehouse: Reno, Nevada

30184-MR

Circle 67 on Reader Service Card

These RAYMOND® Trucks Make NARROW aisles possible!



ELECTRIC TIERING TRUCKS

STRADDLE TYPE

Right angle tiers pallets from 6-ft. aisle. Telescopic and non-telescopic models. 12 or 24 volt power. Capacities: 2,000, 3,000, 4,000 lbs.

REACH-FORK®

Operates in aisles as narrow as 6-ft. with existing racks and pallets. Forks reach out to pick up or deposit load. 12 or 24 volt power. Capacities: 2,000, 3,000, 4,000 lbs.

ELECTRIC WALKIES

LOW LIFT

24 VOLT POWER. Three speeds forward or reverse. Only 20½" longer than load! Capacity: 4,000 lbs.

STACKER

Tiers 2,000 lb. pallet load 10 feet high from 6½ foot aisle. 24 volt power. Three speeds forward or reverse.

SEND FOR FREE BULLETINS!

Whether your operation is small, involving only occasional handling, or big, where tons of goods are moved daily, investigate the dollar and space-saving possibilities of RAYMOND narrow aisle trucks. Send for bulletins today!

THE RAYMOND CORPORATION
3307 Madison St., Greene, N.Y.

Please send FREE bulletins:
( ) Reach-Fork ( ) Straddle
( ) Walkie Low-Lift ( ) Walkie Stacker

NAME TITLE
COMPANY
STREET
CITY STATE

Circle **86** on Reader Service Card

COST CUTTING IDEAS

Plywood Pallets Expand Storage

Roll roofing, formerly stored three rolls high on ordinary pallets, now stores four high on new ply-

wood pallets at the Fiberglas Plant, Santa Clara, Calif. Storage space gains: from 33⅓ to 50 percent, depending on roll sizes.

Industrial Engineer Conrad Caprin says there also is less risk of product damage. The old slatted pallets were sheeted with heavy corrugated paper to protect the ends of the roofing. You don't have to do this with plywood.

The plywood pallets were intended only for in-plant. But they have been successfully used to transport roll roofing to customers near the plant.

Decks consist of two 4-foot-square panels of ½-inch-thick plywood, secured to four 2 x 4-inch stringers equally spaced. Nine nails fasten each stringer. The pallets have 2-way fork lift access.

The Santa Clara plant uses between 12,000 and 15,000 pallets. Today, 1,800 are plywood, with another 700 on order.—*Douglas Fir Plywood Association.*

Circle **255** on Reader Service Card

Aluminum Buildings Ease Lumber Storage

A series of aluminum buildings control difficult inventory at the T. W. Mills Lumber Co., Gardena, Calif. They used to store a large number of sizes and lengths of

Continued on page 30

WHAT'S BEST FOR BULK?

THIS CINDER PLANT OWNER HAS REPLACED HIS CONVEYOR SYSTEM WITH A FAST, BIG-CAPACITY CAT 966

Even the sound arithmetic of cost reduction doesn't tell the whole story. One thousand machine hours ago Victor Prep, President of this Frackville, Pa., cinder plant operation, decided to switch from a conveyor loading system to a mobile Cat 966—the largest of the Caterpillar line of wheel loaders (140 flywheel HP 966, 105 HP 944, 80 HP 922).

Prep's cost sheets and production records for those 1000 hours show that the 966 with a 4 yd. bucket has simplified his entire operation, stimulated production and cut handling costs. The 966 truck-loads up to 1400 tons of cinders a day and handles twice that tonnage working around the plant . . . it still has reserve capacity.

Maintenance, as Prep expected from the rugged Cat loader, has been strictly a few-minutes-a-day routine. The penny-pinching 966 has been working all day long on only 24 gallons of fuel. Add these low operating costs to the low purchase price and Prep's figures prove that he made a smart buy.

But figures are only part of the story. "Now," says Prep, "we have a high-reach machine which loads our big 20-yard trucks and railroad cars in a hurry . . . and then moves off quickly to another plant assignment." After 1000 high-production hours, his 966 has proved that it's always ready to go when he needs it.

Prep's operator is as sharp at 5:30 p.m. as he is in the morning . . . "I can operate the 966 for 10 hours and burn up no more energy than other loaders take for 7 hours' work." The wide-open 966 is safe, too . . . "You don't have to worry about sticking your head out of the cab when the bucket's in the air—lift arms and cylinders are out front where they should be."

Ask your Caterpillar Dealer to take an obligation-free look at your bulk handling methods. Let him prove, in black and white, how one of the three power shift Cat Wheel Loaders and their engineered attachments can fit your exact needs. He knows because he's been a heavy machinery specialist for years.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

CAT WHEEL LOADERS ARE MAKING OTHER LOADERS OBSOLETE

Circle 18 on Card

STEEL WAREHOUSE "TAKES TO THE AIR"

Fig. 1 — TRAK-RAK fork lift at top of column, lifting bundle of steel rod. Unit serves 3 long aisles of racks.

TRAK-RAK SYSTEM INCREASES STORAGE SPACE, SAVES 22% CAPITAL BUILDING INVESTMENT

When A. C. Leslie & Co. Limited, needed more storage area in its busy Toronto steel warehouse, it decided to "reach for the ceiling" with a Chicago Tramrail TRAK-RAK System of vertical storage and handling. As a result, the company estimates it not only saved 22% of projected capital building costs, but increased the overall efficiency and speed of the Toronto operation. The company expects to gain further economies as the TRAK-RAK system is used to its full extent.

A 5 ton capacity toprunning TRAK-RAK Crane was installed in each of two 40 ft. wide bays to serve specially designed 18 ft. high material storage racks (Fig. 1). Each crane bridge has an overhead trolley, from which is suspended an electrically operated rotating column

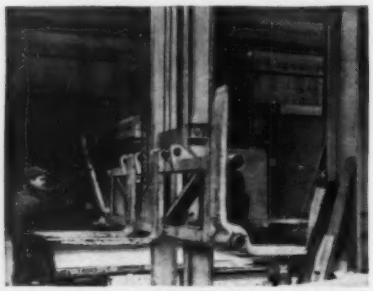


Fig. 2 — Carriage equipped with 2 pairs of forks. Operator is flopping outer forks up.

equipped with a special fork lift. All operations of the fork lift, which revolves to serve either side of the aisles, moves toward or away from the racks, and raises or lowers on the column, are controlled by the operator who rides with the carriage.

Two pairs of forks are mounted on the carriage. The outer forks may be flopped back (Fig. 2) leaving the inside forks in position for handling palletized or crated material. For handling long boxes, bars, etc., the outside forks are flipped back into working position.

A TRAK-RAK feature which added to handling speed and insured safe operation was the safety interlock switch system which prevents the column from running

Fig. 3 — TRAK-RAK column requires minimum aisle space for operation.

into a rack and permits full rotation only when the unit is safely beyond the end of the racks.

The A. C. Leslie Company reports that a similar TRAK-RAK System installed in its Montreal warehouse permitted a 37% savings in capital building investment with equally good operating efficiency and economy.

For complete details on the TRAK-RAK System of vertical storage and handling, write the manufacturer:

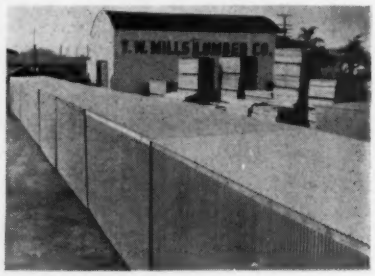
CHICAGO TRAMRAIL DIVISION
Conco Engineering Works, Inc.
1322 S. Kostner Avenue • Chicago 23, Illinois

Circle 31 on Reader Service Card

COST CUTTING IDEAS

beams in the open and the wood often warped.

Owner T. W. Mills designed some aluminum buildings, each 8′ x 10′ x 24′. They have four components: two end walls, back wall,



and roof. Nine loose pin butt hinges secure it. The roofs are slightly pitched to shed rain. A tarpaulin front keeps out the weather, and allows quick and easy access.

"The 20 buildings cost only 60 cents a square foot erected" says Mr. Mills. "And the savings in one year from weathering and better inventory control more than paid for the building."

The light weight of the aluminum sheets made for easier construction. The sheets came in such large sizes they could construct the sections more economically and with few laps than with most other materials available.—*Kaiser Aluminum & Chemical Corp.*

Circle 256 on Reader Service Card

Containers Protect Overseas Shipments

One-package transportation to overseas destinations brings many

benefits to Scott Division of the McCulloch Corp., manufacturers of Scott outboard motors.

Continued on page 35

1961's Successful Compact...

the SCOT Electric Lift Truck

It's been called "the biggest truck in the smallest package in the world"

Unitized construction

Fewer moving parts

Great visibility

Does this cross section suggest why Scot components and service are guaranteed for one full year?

20% gradeability

Speed and power to spare

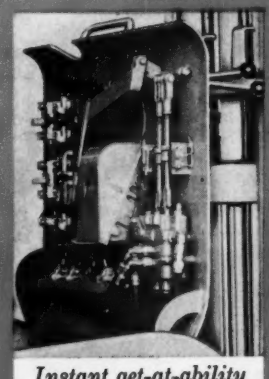
Minimum maintenance

Unsurpassed safety

Lower operator fatigue

PATENTS PENDING

52" turning radius



Instant get-at-ability

Scot Electric Lift Trucks are built in 3000-lb. and 4000-lb. capacities. "Be SCOT-free from maintenance." Ask for both bulletins.

JCS "The Mark of Quality"

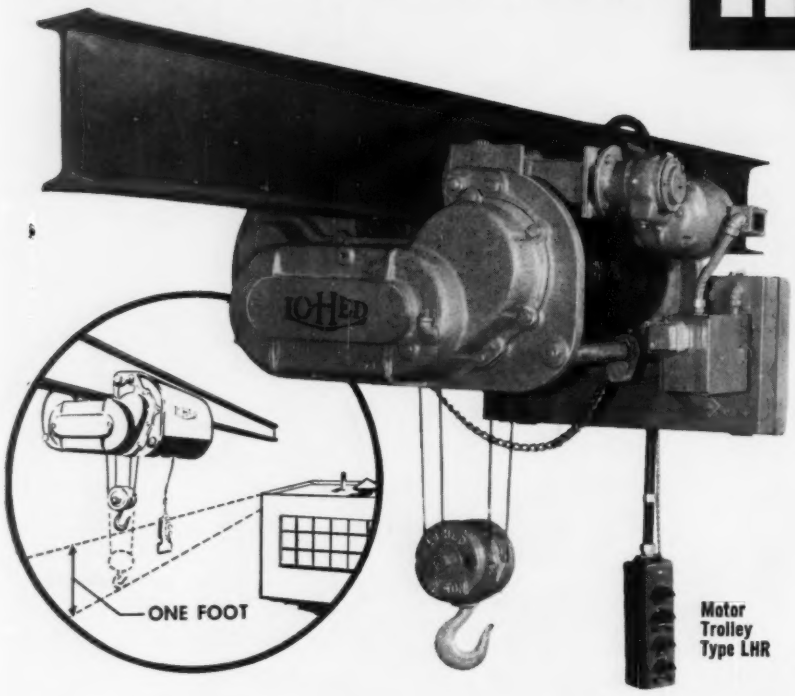
JAMES CAMPBELL SMITH

INCORPORATED • Willoughby, Ohio

Circle 91 on Reader Service Card

LOW HEADROOM MEANS E-X-T-R-A WORKROOM

AE LO-HED® HOISTS



Motor Trolley Type LHR

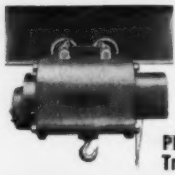
and no other hoist gives as much workroom as LO-HED.

The extra workroom you get from a LO-HED hoist is like money in the bank. In new building construction you'll realize sizeable savings in a foot or more of construction height. In your present plant you'll have extra workroom for speedier and easier handling of materials. All this is accomplished with LO-HED's exclusive balanced-around-the-I-beam design, which eliminates bulky arrangements that waste horizontal work area.

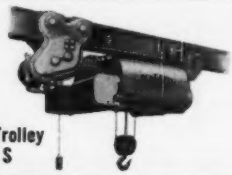
And that's only half the story. Other LO-HED advantages include precision engineering and rugged construction to cut costly downtime; 100% positive automatic stop; powerful automatic holding brake; a fully enclosed, heavy-duty, ball bearing motor especially built for heavy hoist duty. And most importantly, the longer working life at lower cost makes LO-HED hoists first in long-range economy.

HAVE A HOIST PROBLEM?
Let our engineers analyze your needs and custom plan the proper hoist.

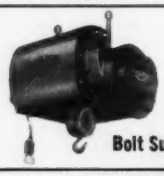
Complete Line of HOISTS and CAR PULLERS for Efficient Materials Handling


Plain Trolley Type

Hand-Geared Trolley Type


Motor Trolley Type S

(Indoor) Motor Trolley, Cab-Controlled Type


Bolt Suspension Type

Stationary Type

Car Puller

AE INDUSTRIAL DIVISION
AIRCRAFT ARMAMENTS, INC. Post Office Box 6853, Baltimore 4, Md.
CLEVELAND DISTRICT: A. E. Company, 1157 Leader Building, Cleveland 14, Ohio
NEW YORK DISTRICT: AE Industrial Division, 1 Exchange Place, Jersey City 2, N. J.

Circle 7 on Reader Service Card

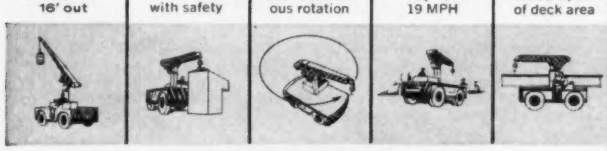
NEW *Go-Devil*® does more jobs reduces your costs

This one mobile crane can do more jobs in and around your plant or future expansion than those handled now by several different units . . . saving you the cost of individual units for special applications.

How many rigs do you now own which have a *360° continuous rotating boom* telescoping out to 16' . . . over and into normally inaccessible areas to pick up castings, motors, metals, barrels, boxes? How many rigs do you use which have a *carrydeck of 50 sq. ft.* with a capacity of 8,000 lbs. . . . permitting you to stack and carry several objects? How many rigs do you have which are *compact* enough to perform indoors as well as *powerful* enough to do outdoor yard work? How many rigs do you now have "half-busy" which one fulltime Go-Devil does with its pallet and coil lifters, slings, magnets and grabs?

Isn't all-around materials handling versatility, precision and safety important to your production picture? Then the answer is the Drott 6,000 lb. lift Go-Devil. Fill out the coupon below now. Ask about the 20 RM2 Go-Devil, too!

IT REACHES	IT LIFTS	IT SWINGS	IT TRAVELS	IT HAULS
24' up . . . 16' out	6000 lbs. with safety	360° continuous rotation	up to 19 MPH	on 50 sq. ft. of deck area



DROTT
MANUFACTURING CORP.
Milwaukee, Wisconsin

CLIP AND MAIL TO

DROTT MANUFACTURING CORP.
Materials Handling Division
3126 S. 27th Street • Milwaukee 15, Wisconsin

I'd like more information on the 60 RM 2 Go-Devil.
Please rush bulletin MH-601.

Name.....

Title.....

Company Name.....

Company Address.....

City.....Zone.....State.....

Circle 34 on Reader Service Card

• Whether your handling system calls for a single truck or a whole fleet, you can count on MOTO-TRUC'S to give you maximum production at minimum cost!

Here's why: First MOTO-TRUC's cost less initially than comparable models built by competitive manufacturers. And, their simplicity plus their easy accessibility assures lowest maintenance cost.

Every MOTO-TRUC model is compactly designed to require minimum aisle space. Yet, they are tough and dependable — built to do more work, day in and day out.

There are more than 200 standard MOTO-TRUC walkie and small rider models for horizontal transport — for hauling trailers and for high stacking operations — There is sure to be one to fit your handling needs.

Get Complete Information. Write for these useful Moto-Truc Catalogs — 56W on Walkies; 56R on Ride-A-Man Models.

The MOTO-TRUC Co.

12103 Taft Avenue • Cleveland 8, Ohio

ROLLER GRIP CONTROL—another MOTO-TRUC design exclusive

Roller Grip Control

This patented control center, used on all MOTO-TRUC walkie models, and many small rider models, as well, is the ultimate in safety and convenience.

Its simplicity assures outstanding dependability and long service life. The operator simply twists the control handle to vary speed and control direction. Push buttons in the ends of the handle control lift and lowering.

This control is just one more example of MOTO-TRUC design quality that means more efficient industrial truck handling.

The MOTO-TRUC Company

Cleveland, Ohio

Circle 69 on Reader Service Card

COST CUTTING IDEAS

Scott ships abroad for the International Division of McCulloch. Scott seals motors and other related materials in 32-foot-long containers on its loading dock in Minneapolis. From there, they're trucked to New York City and put aboard ships for Europe.

Although the program was just recently started, Scott has already shipped two containers of completed outboard motors to Parish; another to Zurich, via Rotterdam; two containers of production service parts to Malines, Belgium; and a container of completed motors, service parts, displays and advertising material, to London.

Irv Nielsen, Scott traffic manager says: "Delivery time and handling are reduced, and we've saved considerably. Containerized shipping is less expensive because we can use standard domestic packs instead of heavy export packs. Also, we have less loss from damage or pilfering on docks or in storage." *—Container Transport International, Inc.*

Circle **257** on Reader Service Card

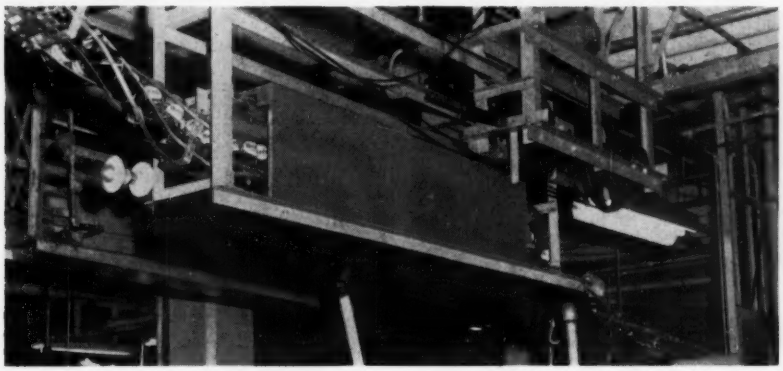
Diesel Loader Speeds Grain Handling

They lower a diesel loader into the hold of barges to speed grain unloading at the Port of New Orleans. The New Orleans elevator is the world's largest export elevator.

The diesel loader provides a hazard-free tool for moving grain to a central elevator. The loader reduces unloading time by over four hours, and eliminates the need for cable rigging and buckets in the ship.*—J.I. Case Co.*

Circle **258** on Reader Service Card

Automatic Rinser Handles 240 Cans a Minute



Improved can rinsing, no damage to flanges, and fewer jams in a high-speed automated can line is the production picture at The Welch Grape Juice Co., North East, Pa. plant. The company gives the credit to a magnetic can-rinser.

They speeded the can line from 180 to 240 a minute. The rinser is a vital key. Open-end cans come on pallets from the container manufacturer. They're unloaded from trucks and placed on a conveyor. It feeds a semiautomatic depalletizer and can-unscrambler. Before the cans move to the packaging line, they are carried on cableways into the automatic can rinser at 240 a minute.

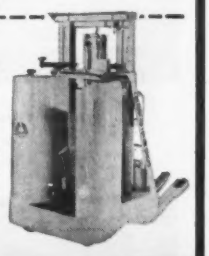
Magnets, mounted above the rinser's endless rubber belt, hold the inverted moving cans securely to the belt. Jets of water, heated to 100°F. shoot into their open end.

Before they put in the magnets, two fast-moving chains carried the cans through this hot-water rinse. But the can rims rested directly on the chains, partially blocked the water. The chains also damaged the can flanges. At times they had to stop the line to prevent this damage.

Plant Manager Bernard C. Robbins says: "Modern food packaging must be completely sanitary, and our magnetic can-rinsing device certainly helps us achieve our goal."*—Eriez Mfg. Co.*

Circle **259** on Reader Service Card

Counterbalanced fork truck handles variety of pallets or skids, requires no outriggers. Available with or without telescoping mast in capacities up to 3000 lbs., lifts up to 130".

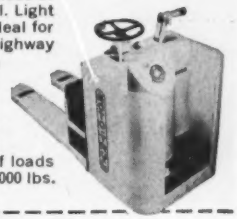


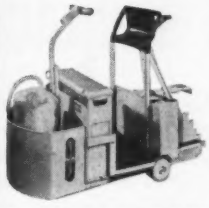
Outrigger type Hi-Lift fork truck for extra stability. Four-wheel support, Magic Circle steering, available in three models for any handling application. Capacities up to 4000 lbs., lifts up to 152".

MOTO-TRUC

Small Rider Trucks

Pallet truck has compactness of a walkie, ruggedness of a rider model. Light weight is ideal for loading highway trucks. Wheel steering, foot brake, dead man control. For horizontal movement of loads up to 4000 lbs.





Tractors feature unique design permitting operation from walking or riding position. Small, maneuverable, all safety features. Develop up to 750 lbs. draw bar pull.

Write for Moto-Truc's free Ride-A-Man catalog— Bulletin No. 56-R.

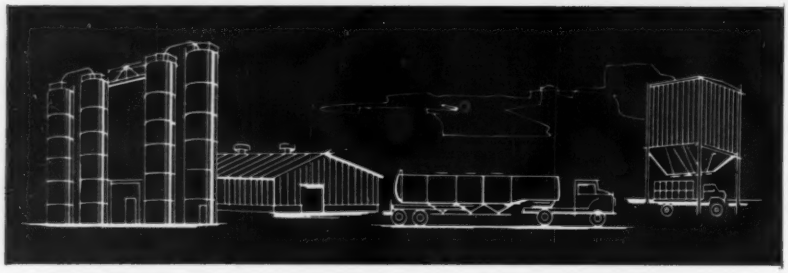
World's Largest Manufacturer of Small-Rider Trucks

The MOTO-TRUC Company

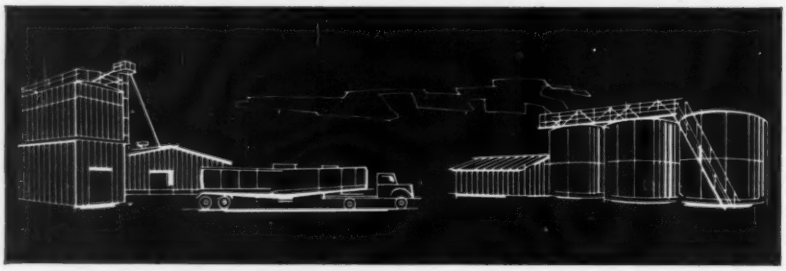
12403 Taft Avenue • Cleveland, Ohio

Circle **70** on Reader Service Card

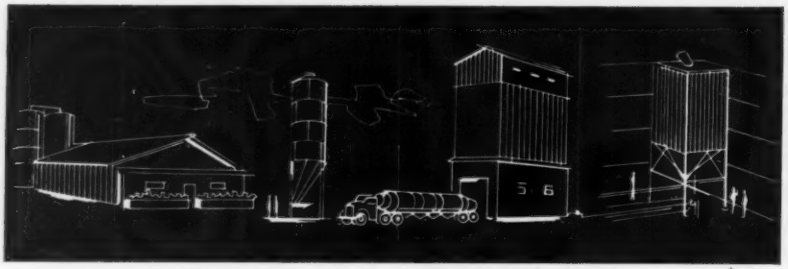
ONLY BUTLER OFFERS A COMPLETE



LINE OF TANKS, BUILDINGS



AND TRAILER TRANSPORTS FOR



BULK STORAGE AND HANDLING

Handling dry flowables in bulk offers many advantages. But tanks, buildings and transports are costly investments when custom designed and fabricated. That's why so many companies are converting with Butler bulk storage and handling equipment.

Butler tanks and Butler buildings are pre-engineered. They simplify the job of creating the basic structures. Bolt-together assembly of standardized components speeds construction, provides easy expansion and keeps maintenance and insurance costs to a very minimum.

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CALENDAR OF EVENTS

July 12-14

National Wooden Box Association
Summer Meeting
Cavalier Hotel
Virginia Beach

July 18-20

Western Plant Maintenance & Engineering Show
Pan Pacific Auditorium
Los Angeles

September 18-23

6th Annual Midwest Work Course on Plant Layout and Facilities Planning
The University of Kansas Extension Center
Kansas City, Kansas

October 16-20

National Safety Congress
Chicago

November 4-7

Eighth Annual Building Materials Exposition
McCormick Place
Chicago

November 7-10

Packaging Machinery Manufacturers Institute Show
Cobo Hall
Detroit

May 8-18, 1962

Mechanical Handling Exhibition
Earls Court
London

May 9-11, 1962

Western Material Handling & Packaging Show
Great Western Exhibit Center
Los Angeles

June 19-21, 1962

Material Handling Institute Great Lakes Show
Cobo Hall
Detroit

Circle 107 ⟶

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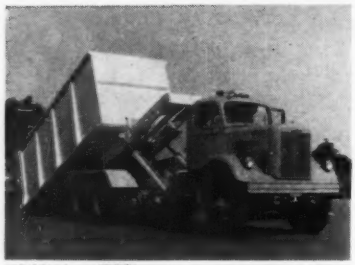

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DINOSAUR picks up DINOMASTER hydraulically for refuse container service.

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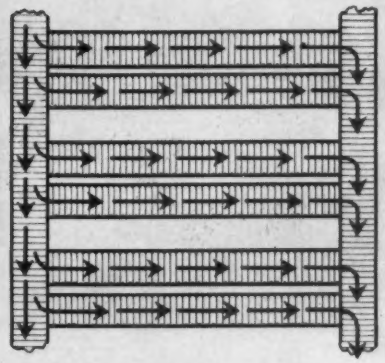
Circle 33 on Reader Service Card

How an Olson System Solved a Tough Storage and Handling Problem



Though seared by 700°F. radiation for a full sixteen hours daily, not one of the 11,000 rollers in this series of Olson Conveyors has ever failed during more than twelve years of continuous service at The Dow Chemical Co. plant in Freeport, Texas.

Consisting of over a half mile of roller storage racks, the system was designed to handle the storage of 700-pound drums of molten caustic soda while cooling. Drums are conveyed from the pouring point to the storage conveyors by means of an Olson Steel Slat Conveyor. Movable diverters switch the drums onto the roller conveyor lines which are at right angles to the slat conveyors, and slightly canted so the drums can roll into line by themselves.

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Despite the years of daily torture, every roller in this system has continued to turn smoothly since installed in 1948. Other than occasional lubrication, the rollers have required virtually no maintenance—assuring maximum dependability on a vital production line where a single roller "freeze" could make everything stop cold.

Learn how an Olson System can help you cut handling costs and speed the flow of parts and materials during, between and after manufacturing operations in your own plant.

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productivity

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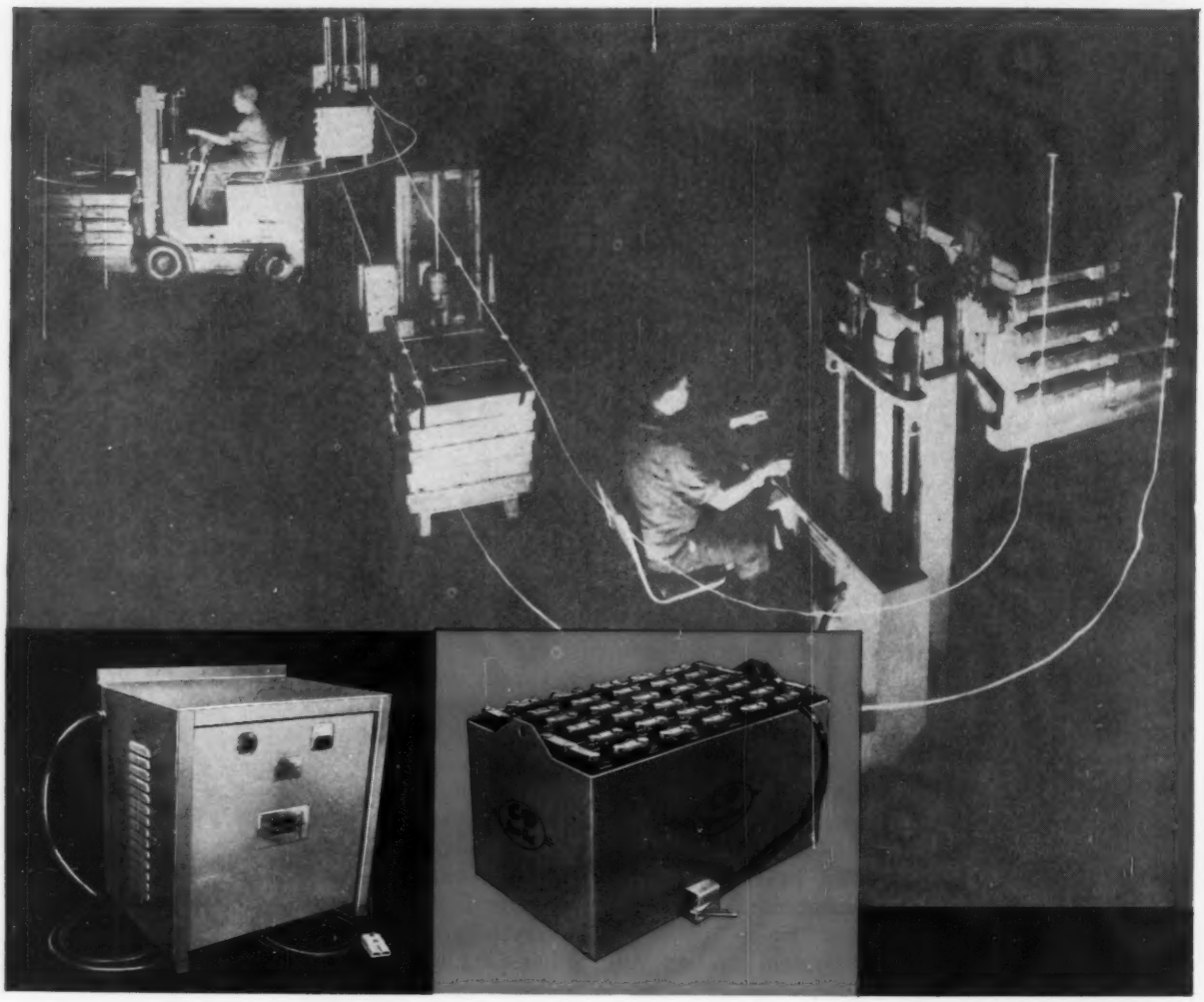

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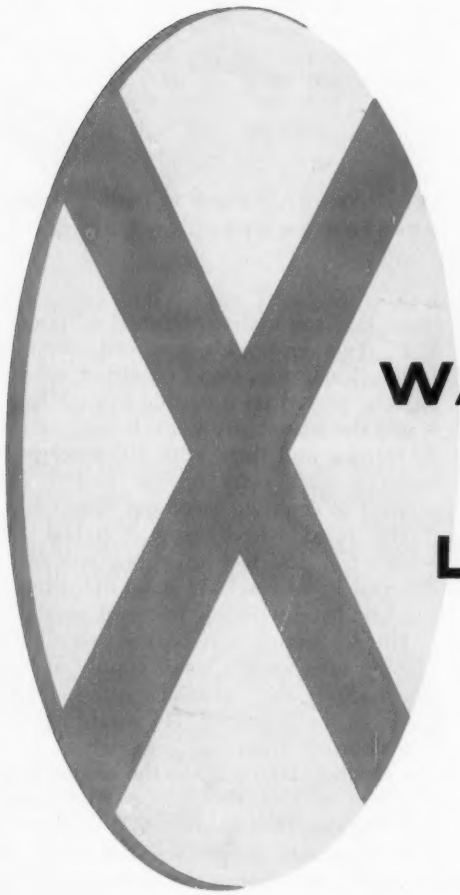
Circle 16 on Reader Service Card

Material Handling Engineering

JULY 1961



WATCH . . . WAIT . . . LIQUIDATE!

ARE YOU WATCHING AND WAITING for the perfect material handling system to hit the market? Watch out! You're apt not to be in business when it comes.

How do you know if you're in this danger? Simply this. Find out what fraction of your costs you devote to material handling. This sum adds nothing to the value of your product. Now you have your target. The material handling cost figure in relation to direct labor averages 20 to 25 percent in industry. Let this be your guide. If you can improve on this performance, in turn you will improve your competitive position and net profit.

Change the railroad warning "Stop . . . Look . . . Listen" to "Watch . . . Wait . . . Liquidate." The sign and flashing lights are to make you stop, look, and listen. But there are some people that just listen and do not stop. Others ignore the looking and the listening and end up liquidated. And there are those who stop dead and never go across because of fear. In life and in business there can be no standstill. If so, the profit line starts down.

How can you avoid liquidation because of waiting and watching, and doing nothing about it? Follow these rules:

1. **Recognize your target and objective.**
2. **Do something about it through your own people if they have the ability, background, and knowledge.**
3. **Seek professional help from reputable consulting engineers who have performed successfully in their fields.**

This decision is the top management's. Consulting engineers work closely with them. But they also work closely with line management, who have to operate the system. They have to be satisfied that it will work.

Let's take four actual cases. You fit into one of these classifications:

A. The company that watched, waited, and liquidated.
B. The company that is watching, waiting, and is thinking of doing something about it.
C. The company that watched, waited, did something about it and then had to correct what they did to realize full system benefits.
D. The company that watched, waited, and did something about it and enjoys good results.

A. The company that watched, waited, and liquidated

Once this mid-western firm was the world's largest producer of automotive engine castings for the Big Three. It gradually fell to oblivion.

The firm did have material handling equipment. But application of some of this equipment was on a "cork-plugging" basis. The equipment was bought solely for a particular application, and not tied into an integrated system. Yes, they had conveyors, fork trucks, and automatic dumpers. But top management just didn't appreciate, or even try to learn, what an integrated system could mean to them in a competitive era.

You may think we're exaggerating. We're not. It's the way this company operated. True, the firm was plagued with a group of old buildings. But they used this as an excuse to watch and wait, without realizing that the next step would be liquidation.

Here's how they received unfinished castings. Each day, a 35 foot trailer, bulk-loaded with raw castings,

came in. Each casting weighed 4 lb. and was 2″ x 8″ x 2″. Two men with a wheelbarrow unloaded this trailer. Each man stood on either side of the wheelbarrow, picked up a casting in each hand, and threw it into the wheelbarrow. Each man would count up to 50 throws, and then, with 100 castings to his credit, made a chalk mark on the trailer. This was their method of counting incoming material.

The filled wheelbarrow weighed 800 lb. They wheeled it 150 feet to a big pile of castings, and dumped it. So you have hand unloading, hand counting, and hand wheeling to create another bulk pile.

The machining was on the second floor. The machining area kept a small supply of castings. When the machine shop needed castings, they sent a man down to the first floor. He would again hand load a wheelbarrow from the pile, wheel it 300′ back to the elevator, take it up to the second floor, and dump the load on the storage pile. And from this storage pile, the men took castings to machines as needed.

Management simply was not aware, and failed to recognize the application of material handling equipment as being able to return investment only through an integrated system. They failed to recognize this important formula: D = T = $. (Distance = Time = Money).

Then, automated foundries came along. The Big Three started casting their own blocks. The company we are studying here became frantic. Too late, they attempted to revitalize their handling and processing. But they had watched, and waited too long. They lacked capital. Their earnings record couldn't attract capital. And so . . . the company liquidated.

There were many other examples of poor handling in this plant. Core stand, for example, came in big hopper boxes. Instead of fork trucks, two 220-lb. men pushed the boxes to the elevator. Then they hand shoveled the sand to the muller.

Blame top management. But line management was responsible too. Line management reflects top management. Line management didn't tell top management about poor handling methods, didn't point

---

"In many of the examples in this article the key to action, or no action at all, depends on using or not using the formula D = T = $ (Distance = Time = Money).

"In all matters of flow, storage, and materials movement the application of this formula cannot be overemphasized in terms of a perpetual application to prevent a status quo condition that threatens possible liquidation.

"Even the best operations, those that seem sound on the surface, can be improved with far reaching results through the application of material handling as the catalyst for far reaching influence to the objective of an increase in net profit."

Joseph A. Sedlak, president of Jos. A. Sedlak, Management Consultants, Cleveland, provided technical assistance for this article. His firm has been connected with several prize winning installations, including one at Majestic Specialties. It won the 1960-61 Material Handling Award of the Cleveland Chapter, American Material Handling Society.

out the need for action. Line management can incite top management. The general foreman and department heads have to sell action.

If 15 years ago you would have asked many of the companies that are liquidated today if they had material handling systems, they would have told you "Yes." And today, you can ask many companies the same question. They'll say "Yes" too, and point out that they have a material handling system, and often, the very latest equipment. But unless this is integrated on a system basis from receiving through processing through shipping, in effect you have small corks shoved into holes. These companies don't realize that the holes are so big that all the corks in the world can't plug them.

B. The company that is watching, waiting, and is thinking of doing something about it

And they had better do it quickly. Hundreds of companies today just don't realize that the next step actually is liquidation. They're currently in this watching and waiting stage because they are unaware, and lack courage to do something about it. They will soon be out of business.

Here's a history in the making. A large knitting mill on the east coast until 5 years ago lead the field. Today, it's in third to fifth position. As far as knitting processes, it has the very latest equipment, much of it designed and patented by themselves. But once the products leave the manufacturing area, they're thrown to the four winds by poor handling methods in warehousing and distribution. The outdated systems are ruining customer relations. They can't ship on time. They can't service accounts. And the customer who has found this out through experience, thinks twice now before doing business with them.

The company places its total emphasis on manufacturing, with almost the same complete disregard in indirect labor areas, as packaging, warehousing, and distribution.

For the last year and a half, this company has known something has to be done. But they've lacked the courage to press the button to go ahead due to fear of change and operation disruption. Actually, they fear the cost of moving out of the horse-and-buggy days.

C. The company that watched, waited, did something about it, and then had to correct what they did to realize full system benefits

Here's the case history of a large midwestern distribution center. They had watched, waited, and finally went ahead, and installed a system. They spent $750,000. But after the first year, their handling in the new consolidated master distribution center cost more than it used to cost in the old 5-building disjointed operation.

This company had the courage to rip out $75,000 worth of equipment. They spent another $120,000 to

correct steps in the system, controls, and system application. And today, they have a perfect system.

D. The company that watched, waited, and did something about it, and enjoys good results

Our case history here is that of a dress manufacturer who grosses over $12 million a year. For 50 years the company has shown a continuous rise in sales and a sound profit. They had a fine material handling system, but were not satisfied because top management was sharp. It was aware of costs, of the value of good sound customer relations (service, packing, delivery). Management felt that its system could be improved and that a more integrated mechanized handling system would save money. They called in a consulting firm, went along with system changes that gave them: new packaging; continuous invoicing; improved use of space; conversion of mezzanine storage from reserve to active stock through mechanization of stock movement; improved receiving and shipping.

Savings: $52,540 a year. With $28,102 spent on equipment, they're reaping a 187 percent return. The system will pay itself off in direct labor savings alone in only 6½ months.

In which of the four classifications is your business? Are you simply watching and waiting, and rocking the boat and heading for liquidation? Or are you going to do something about your handling methods *now* and save yourself from going out of business? ♦

A continual search

By **DICK DIETZ,** *Associate Editor*

YOU'D THINK BOBBIE BROOKS INC. would crow over its prizewinning, pacesetting Cleveland distribution warehouse. It's a material handling showplace, the nerve center of this firm which makes casual wear and sports wear for women, 15 to 24 years old. But good as it is—and Bobbie Brooks is proud of it—there's neither time nor inclination to gorge on the fruits of accomplishment. The gadfly: If we're doing it well now, there's still a better way. Let's find it!

This is one reason Bobbie Brooks remains a leader in the women's clothing field. The idea of changing methods frequently may sound unsettled. But it works and few will argue with success. I made two visits in two months. In that short time, Bobbie Brooks had changed part of its paperwork control system, was hot at work clearing up some handling bugs.

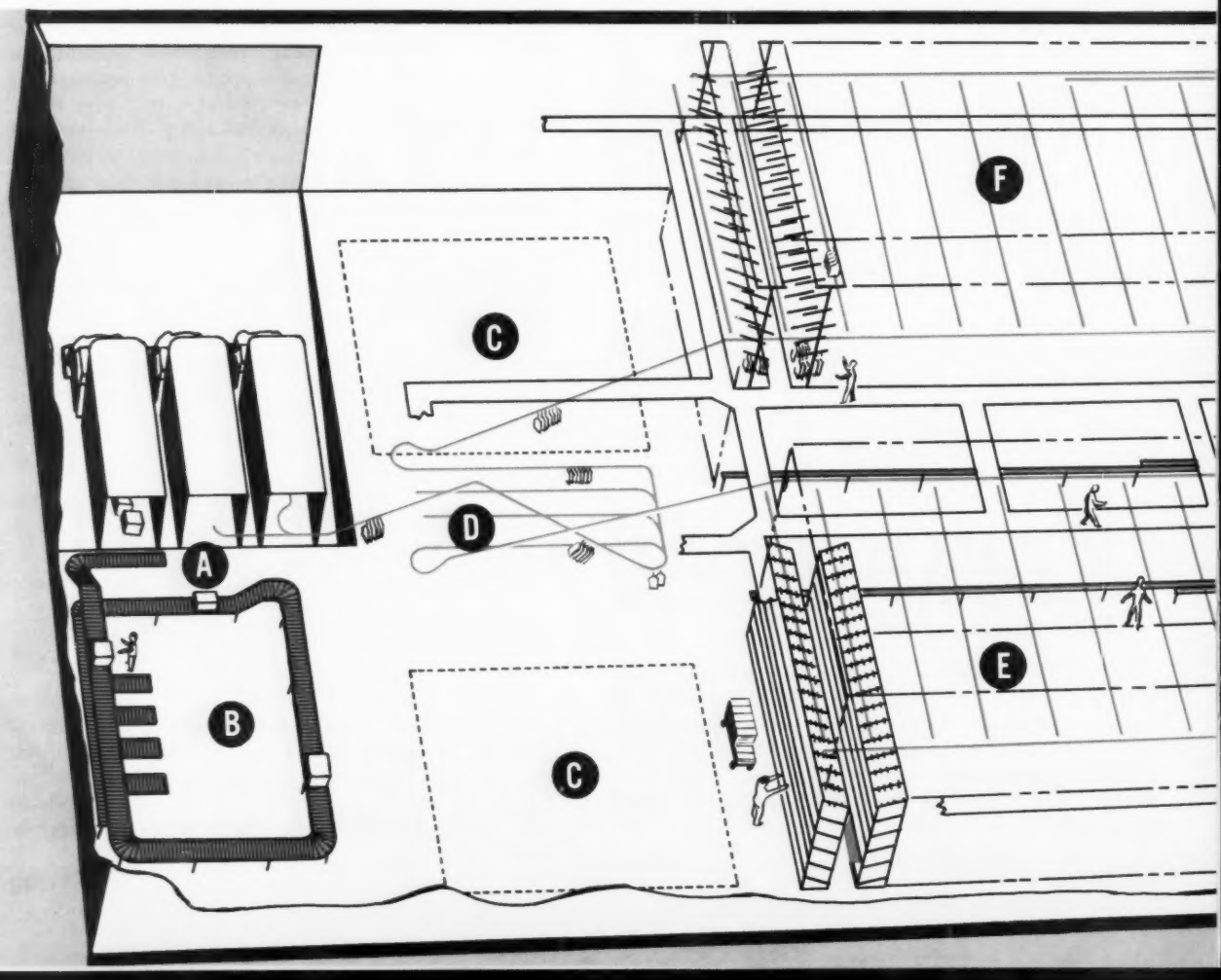
Service above all. Bobbie Brooks lets nothing disrupt service. The small shop that orders two garments gets the same quick service as the department store that orders thousands. This is quite a trick with 6,500 customers, any of whom might order any number of 10,000 different garments a season in hundreds of different colors, styles, and size mixes.

Bobbie Brooks manufactures in 9 plants in 5 states: Pennsylvania, Ohio, Missouri, Arkansas, and Louisiana. The firm also buys from subcontractors. Nearly everything comes to Cleveland for distribution. A small amount goes out of West Helena, Arkansas.

Why centralize distribution? Because the firm early found that you can't break apart and ship a staggering inventory quickly or efficiently with stock spread around the country.

They called in The Austin Co. to look over the facilities, to analyze long range distribution needs. Austin designed and built an 87,000-sq.-ft. warehouse, remodeled the old one of 16,000-sq.-ft. They designed for straight line flow, long an Austin principle. Because of exceptional clearance in the new warehouse, Bobbie Brooks easily stores 380,000 hanging garments and 1,027,000 boxes of goods at one time.

The warehouse is full of good features: air conditioning (430 tons), strip fluorescent lighting (50 footcandles throughout), white paint for brightness, ac-



for better handling

coustical insulation, impervious floor covering for cleanliness, windowless walls.

Fast-moving warehouse. Work flows in a straight line from receiving, through storage, out at shipping. They classify garments simply as boxed goods or hanging goods. Bobbie Brooks is happiest shipping at capacity, something more than 50,000 units a day.

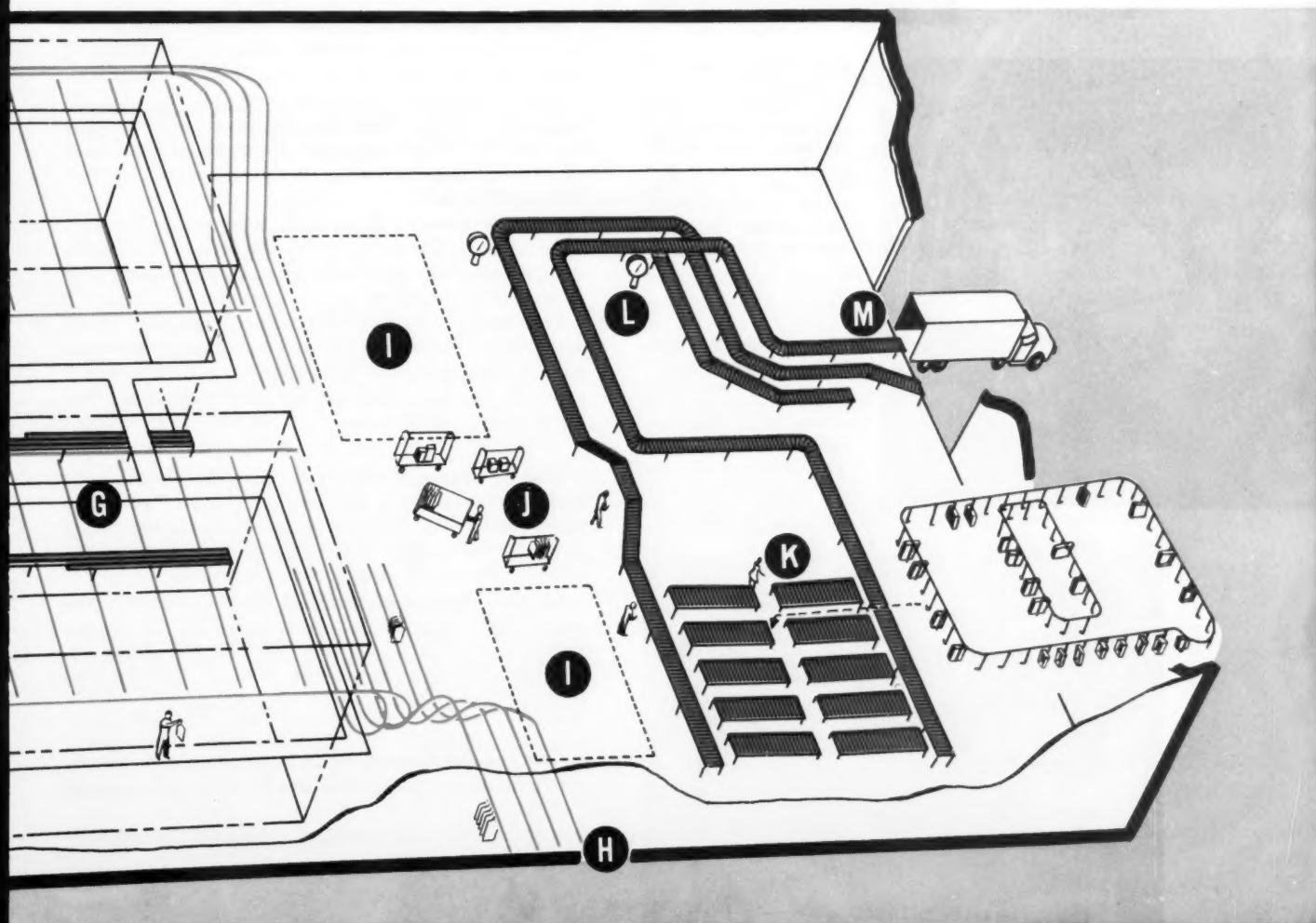
Boxed goods handling. Boxed goods arrive in cartons. They're loaded on a belt conveyor to the breakdown area. Here, workers inspect by statistical quality control, then send boxes to storage by hand cart. There are 55,000 ft. of live storage in 28 separate racks with 10,280 openings. Workers fill racks from the rear of each. Loads slide forward on wide rollers toward picking aisles—first in, first out. Excess goes into reserve racks.

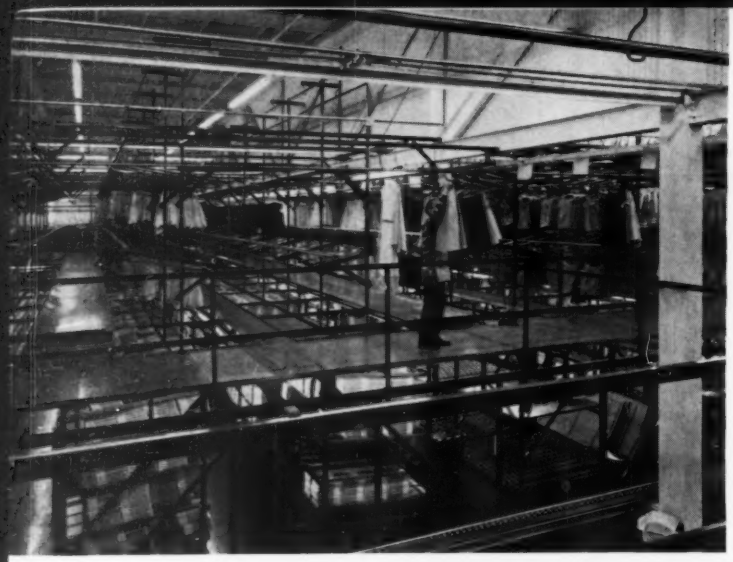
New V-Belt conveyors. Bobbie Brooks jolted the clothing handling field with first use of a simple, practical V-belt conveyor for hanging goods. A former company executive, working with outside suppliers, developed it.

Industrial Engineer Al Wilson of Bobbie Brooks calls it a good conveyor, developed for its fast (100 fpm), lightweight, clean, silent, and versatile qualities. The firm has 14 with B cross section (⅝-inch), driven by 18 motors, ⅓ and ½ h.p.

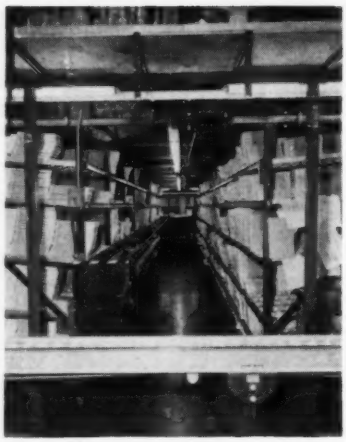
Still some bugs. Wilson is considering some V-belt changes. He plans to put in heavier motors, replace some end pulleys with larger ones, reduce friction up

WAREHOUSE is designed for straight line flow. At receiving (A), boxed goods in cartons ride the floor conveyor to breakdown area (B) where workers inspect, then truck boxes to racks. Hanging goods float to accumulation area. (D), then to mezzanine where they're hand loaded on rack slides (F). Two areas (C) are for reserve boxed goods, used only when live storage racks (E) are full. Picked hanging goods go on conveyors at outsides of upper slide racks, lead to accumulation area (J), as do conveyors from old warehouse through entrance (H). Picked box goods move to accumulation on storage floor conveyors (G). Two areas (I) hold orders not ready for shipment. Completed orders are packed at (K). Two trolley conveyors holding empty cartons (to right of K) actually circulate directly over the packing area. Completed shipments move by floor conveyor to weighing and shipping (L) and on to the dock (M).





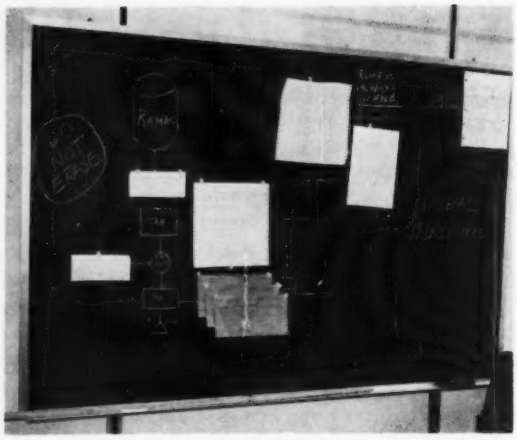
HANGING GOODS arrive by V-belt conveyor from shipping. Worker on mezzanine plywood walkway delivers goods to slide rails.



LIVE STORAGE racks are loaded from one side, picked from the other. Boxed goods go on parallel V-belt conveyors, wind up at this end. Then they're transferred to the accumulation floor conveyor in the foreground.

PIPE SLIDE connects rail in truck ceiling to a powered V-belt conveyor at receiving dock. Workers shove out hanging goods for efficient transfer into the warehouse system. In rear, cartons of boxed goods ride floor conveyor to breakdown and inspection.

EMPTY SHIPPING CARTONS circulate over packing area for prompt, easy selection. Women pack hanging goods. Men combine these and boxed goods into shipping cartons, send them on by roller conveyor to weighing, tagging, and the shipping dock.



PAPER WORK starts with a computer which matches order with stock on hand. The result, if successful, is a hit card. From this comes the allocation report (to right of first tab) and the picking tickets (just below). Other forms are invoice list, order recap, and an adjustment sheet for back ordered quantities.

inclines, perhaps with a lubricant. Eventually, he hopes to run the V-belts at 300 fpm.

A smaller V-belt conveyor moves boxed goods from order picking aisles to accumulation conveyors. It's A cross section (¾-inch), in parallel pairs, with boxes sitting across them. There are 14 of these. Bobbie Brooks has miles of conveyor, a good deal of which is V-belt.

Pulling the orders. You find hanging goods stored on a mezzanine above the live storage racks. Hanging goods covered with plastic wraps arrive in trucks. Workers connect a portable slide rail to a rail in the truck ceiling, shove hanging goods directly onto the receiving V-belt conveyor. From an accumulation area, hanging goods move to the mezzanine on two V-belt conveyors.

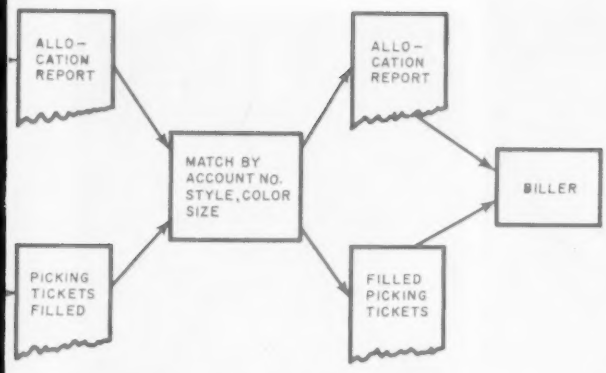
Workers transfer hanging goods to slide racks, 2 and 3 high. Garments go on the rear of the slides, are picked from the front. This keeps loading and picking aisles separate.

The storage area divides into 18 picking areas, with some duplication of garments, so pickers can select similar garments without getting in each others' way. They also can make up an order without walking all over the warehouse.

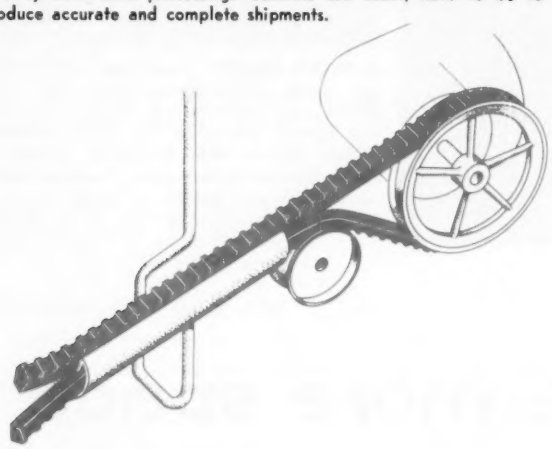
Out of storage. They take hanging goods to V-belt conveyors along the outside aisles of the slide racks (the input V-belt conveyors are on the inside aisles of the racks). The outer conveyors carry the selected garments directly to order accumulation.

On the lower floor, workers send boxes from the live storage racks to the center aisles on the smaller V-belt conveyors. From here, they're placed on adjustable pressure conveyors (eight of different lengths) for a ride to order accumulation.

Out the back door. At order accumulation, workers combine hanging goods and boxed goods on hand



SCHEMATIC of gathering shows how filled orders are matched against the allocation reports. The reports arrive at accumulation directly from data processing. Controls are exact, have to be to produce accurate and complete shipments.



V-BELT CONVEYOR runs on top of stainless steel track, returns through tube. Support attaches at the bottom of the track, doesn't interfere with hangers holding hanging goods.

trucks (one order to a truck). When due for shipping, trucks are unloaded, hanging goods on a rail and boxed goods on a conveyor.

Twelve teams pack the goods. Each team includes a woman to handle hanging garments and a man for boxed goods. He also assembles all packages into shipping cartons. Teams get cartons from two overhead trolley conveyors which continually circulate. One worker does nothing but set up cartons, hang them on the trolleys.

Men packers send all shipments by conveyor to weighing. Parcel Post orders get labels and shipping information right at weighing, continue on a main conveyor into Parcel Post trucks. Express and freight shipments are routed by conveyor to adjacent truck docks, express right into waiting trucks and freight accumulated to await common carriers.

Behind the scenes. Bobbie Brooks easily could have bogged down in paperwork. But it didn't. The firm kept its eye on effective new methods, used them to find the best way to divide finished goods and ship to customers. Here's how David S. Joseph, manager of Clerical Systems and Procedures, explains the system:

Daily, an order allocation committee reviews what's on hand by style, color, and size. Then the committee instructs the data processing department to pull certain orders from the file. Most regular orders come in well ahead of requested shipping dates. There may be two months between a starting date (don't ship before) and a completion date (ship no later than).

Enter the computer. A dual Ramac with a single memory file—a series of magnetic discs that turn at 1,200 rpm. Four arms pick inventory information from the discs.

Workers run the orders (prepared on punch cards) through the computer, compare them with inventory information in the machine. In general, they compare style, color, and size requested with what's on hand. If there's enough in stock to cover, the computer punches out a "hit" card, the basis of order picking. Orders that don't make it go back into the file.

With the hit card they make an account allocation report and a picking ticket. These go to order allocaters who decide if criteria for shipping and customer service have been met. If so, the allocaters then post the method of shipment and date on an order recap and send the allocation report to the accumulation area of the warehouse. An order recap, a document which lists a customer's orders for the season, remains in the file as a master control.

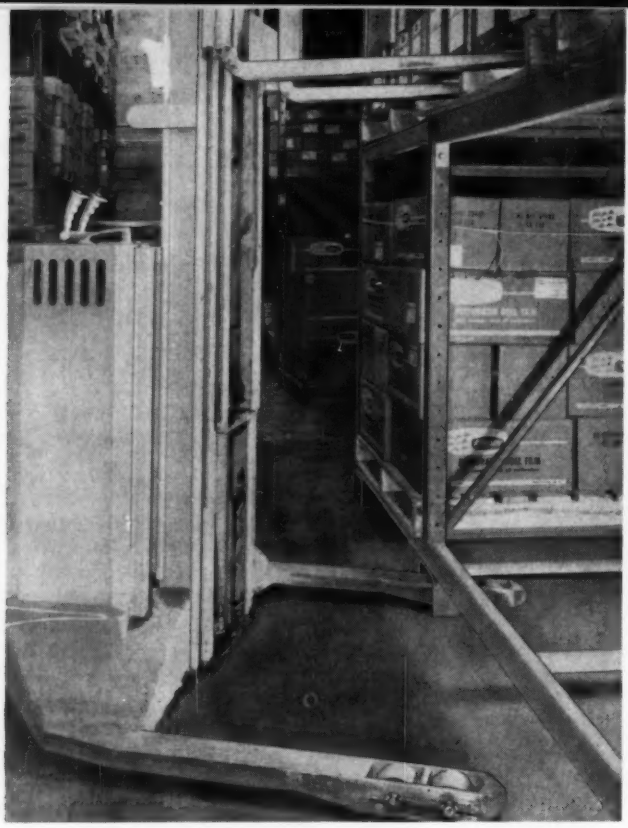
The picking tickets go to a warehouse station where they're divided among the 18 order filling areas. Secret of success: keep the tickets in sequence so that garments picked appear in the proper order at accumulation.

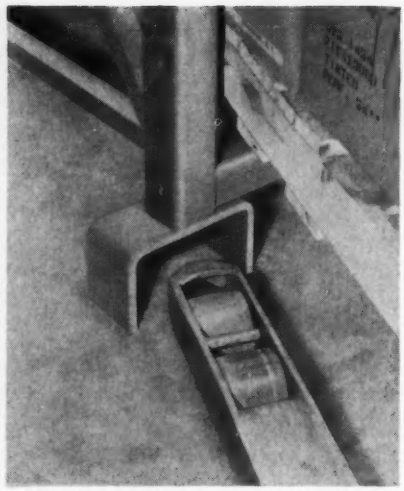
The windup. Workers combine hanging and boxed goods on hand carts at accumulation. Others check the picking tickets against the allocation reports previously sent down. They hold back incomplete orders, send the rest to shipping. Then the shipment is "billed" and method of shipment posted. Invoicing is done the same evening. The next morning invoices are mailed to customers. For immediate shipping, emergency orders, and the like, they use special-colored picking tickets which get priority and special handling.

What's in the offing? Bobbie Brooks is considering mechanization for slide racks on the mezzanine. Right now, stock pullers hand pick hanging goods. The firm envisions solenoid-controlled escapements for garments to glide from the slides onto a V-belt conveyor which would transfer them to accumulation conveyors—all controlled by buttons at the rack ends.

Bobbie Brooks already has on order a new computer, one that will provide faster service and more flexibility. The firm uses the computer for all sorts of studies and marketing information, as well as for order allocation and inventory control.

Blue sky. The ultimate plans truly are glamorous. Bobbie Brooks considers not unlikely one day an entirely automatic order picking warehouse. You place an order card in a slot, pick up the order at the other end of the warehouse, with no one in between. Sounds fantastic, but don't bet against it. ♦





PLACING PALLETS is easy now with the new rack system and bridge-leg. Truck can place pallets closer together, and closer to uprights. This method eliminated 9½ inches between pallets. Close-up of the bridge-leg (above) is the key feature of the system. Truck maneuvering is easier now and it's no longer necessary to straddle pallets, since they are on shelves.

Found—50% more space

AFTER OPERATING ONE YEAR in their new warehouse (Building 15) the Kordite Co., Macedon, N.Y., found that they increased their space utilization 50%.

Building 15 is one of two warehouses belonging to the Kordite Co. They are both the same size—100 ft. by 280 ft.—so it was easy to compare efficiency of the two.

In their first warehouse, their pallet loads equal about a 4-ft. cube. The capacity is about 2,300 pallet loads in 28,000 sq. ft. They use narrow aisle trucks and operate in 78-in. aisles, stacking loads four high. The product fills 20 percent of the available cube of the building. Although they considered this good, they wanted to do even better in their new warehouse, Building 15.

They found that stacking loads five high instead of four, gave them 25 percent more space. They were able to do this by using new triple-stage-mast narrow aisle trucks that can stack 24-ft. high.

They gained still another 25 percent by using a unique system of pallet racks. Working with rack engineers, they developed a rack system that enabled them to use narrow aisle trucks.

Bridge-legs (that look like inverted U's) support the front column of the rack. No pallets go on the floor. Rather, they are placed on the rack, about six inches off the floor. Now, pallets can be placed closer to each other, and to rack uprights because the outriggers of the truck fit easily beneath the racks and into the bridge-leg. Truck maneuvering is much easier now. Straddling pallets is no longer necessary because there are no pallets on the floor to straddle.

This new method also eliminated 9½ inches between pallets. Ten additional pallet spaces in the building—a 10 percent increase—was the result.

The bridge-leg also made it possible to reduce the width of the aisle six inches, because the truck can now complete its turn while entering the rack. Kordite added two additional rows of racks as a result.

The remaining increase resulted from storing pallets over the main center aisle which runs the length of the building. This proved to be an ideal spot to store the few loads that were too wide for the 6-ft aisle.

Kordite was so pleased with the success of Building 15 that they are already planning their rack storage for another warehouse. They'll modify the rack specifications but will keep the same 72-in. aisles, 3-in. between pallets, pallet storage over the main center aisle, and the bridge-leg. ♦

Know Your C/E ratio for PALLETLESS handling

Which palletless method will pay you best?

What users save . . .

How to figure your cost/efficiency ratio . . .

Is PALLETLESS HANDLING for you?

There's no need to guess. You can estimate the cost of using palletless handling in your operation. Then you can compare it with the cost of your present method. State the comparison in the form of a ratio, and it does even more for you. It is a guide telling you whether a palletless method is likely to pay. It can also help you select the most appropriate of several palletless methods.

Figuring Is Not Hard

The main precaution you must make in figuring is to avoid omission of any significant cost factor. The chief ones are equipment, space, labor, administrative time. The form on the next page helps you include them all. You are comparing *systems,* so the price of the equipment may be a small part of the total costs which result from the system. Payoff period, return on investment, and similar gages may therefore be misleading. A direct comparison of whole systems means more.

The form helps you compare palletless handling with the use of pallets. Other alternatives may be possible for you. If so, develop your own estimating form, remembering to include changes in the cost of space, supplies, packaging, shipping, administration, etc.

In using the form fill in only those figures which make a real difference. For example: A palletless handling attachment may cost only $300. Taxes and interest will be negligible, not worth figuring.

Be sure to include cost of space. It is always important. For costs of truck operation use only the time when the truck is handling material. You bias the results in favor of the less efficient method if you throw in time a fork truck is used to clear snow, etc.

Your final ratio will be in terms of per-unit costs, and you have to select the unit. Be sure it is uniform. "Cartons" can be the unit if all your cartons are nearly the same size, weight, and shape. Don't use dollars as the unit; they change with price fluctuations.

If you receive on pallets that must be returned, or if you ship on pallets you want back, put in the shipping costs, and a figure for administrative time. Both can mount up.

Final Figures a Ratio

You end up with a ratio which compares the cost of *using* one system with the cost of using another. This is not equivalent to payoff or return on investment. To get these you must include salvage value

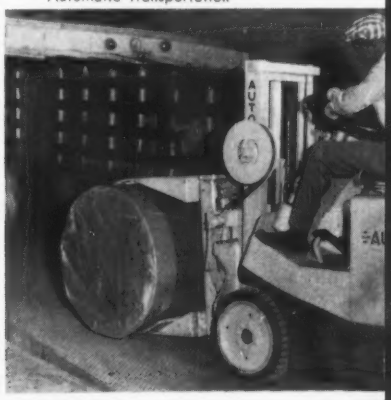
Yale & Towne

EXPENDABLE PALLET

Automatic Transportation

SPECIAL STACK, CLAMP FORK

Automatic Transportation



ROLL & DRUM CLAMPS

BASIC PALLETLESS METHODS—

which one will work best for you?

The method you check out will probably fit in one of these classes:

A. SUBSTITUTES FOR PALLETS—includes expendables made of corrugated, flat fiberboard sheets, etc.

B. NO-PALLET SYSTEMS separate into these groups:

1. *Lift truck attachments or modifications require no package or product change*—most clamps, grabs, hooks that go under carton top collar, vacuum lifts, etc.
2. *Truck attachments or modifications, with change in products, package, or stacking*—hooks for slotted cartons, special stacking and use of multiple forks that grip lowest tier of cartons or bricks, special stacking with taping or tying of top tier, glass manufacturers' method.
3. *Package or product modified, no truck change*—unitizing carton load by means of adhesives, designing lugs or trunions into product, etc.
4. *Take-it-or-leave-it*—special pallets, or load-pushes to use with standard pallets.
5. *Systems including modification of boxcar, truck trailer, airplane, etc.*

Use this form to gage the results:

Palletless Method		Using Pallets	
Equipment & Supply Cost Factor			
Cost of Attachments (Annual costs)	$____	Cost of Pallets (Annual costs)	$____
Depreciation of attachment	____	Depreciation of pallets	____
Interest on undepreciated attachment value	____	Interest on undepreciated pallet value	____
Estimated taxes on attachment	____	Estimated taxes on pallets	____
Maintenance & repairs	____	Maintenance & repairs	____
Supplies required (expendable pallets, etc.)	____	Supplies required	____
A. Total E & S cost	____	A' Total E & S cost	____
Space Cost Factor			
B. Total space required for material handling and storage of fixed quantity of product (same quantity as in B')	____sq. ft.	B' Total space required for material handling and storage of fixed quantity of product (same quantity as in B)	____sq. ft.
C. Space required for storing supplies	____sq. ft.	C' Space required for storing pallets and supplies	____sq. ft.
D. Cost of space, per sq. ft. per year	____	D' Cost of space per sq. ft. per year	____
E. Total space cost* ((B+C) × D)	____	E' Total space cost ((B'+C') × D')	____
Industrial Truck & Labor Costs			
F. Number of trucks required	____	F' Number of trucks required	____
G. Cost per hour of truck operation and driver	____	G' Cost per hour of truck operation and driver	____
H. Cost of special stacking or arranging, per unit*	____	H' Palletizing cost, per unit	____
J. Hours of truck operation for palletless handling, per year	____	J' Hours of truck operation per year for handling pallets (with and without product)	____
K. Units of product handled per year	____	K' Units of product handled	____
Special Factors			
L. Cost of administrative time required by palletless handling, per year	____	L' Cost of administrative time required by handling on pallets, per year (include time spent keeping track of pallets shipped out, etc.	____
M. Other costs, per year (Include shipping costs if they affect total)	____	M' Other costs, per year (Include shipping costs if they affect total)	____

Computation:

$$\text{Cost Efficiency Ratio} = \frac{K\,(A' + E' + (F' \times G' \times J') + L' + M' + (K' \times H'))}{K'\,(A + E + (F + G + J) + L + M + (K \times H))}$$

*Unit — see text.

of equipment taken out of service, allowance for corporate income tax, and final results must be in dollar advantage per year. The ratio you get—the last figure on the form—indicates effectiveness in keeping costs down, or *cost efficiency*, and it tells you you will gain from palletless handling if the quotient is greater than 1.

An Example Worked Out

This is a composite example based on the experience of a specialist who has computed costs for hundreds of users:

	Palletless	*With Pallets*
Equipment Cost:	$23,850	$317,352
Depreciation (10 years)	2,385	31,735
Interest	1,192	15,217
Maintenance	2,000	107,784
A, A' Totals	$6,577	$154,436
B Storage space, sq. ft. (5 tiers)	790,173	
B' Storage space, sq. ft. (4 tiers)		1,000,000
C, C' Space for supplies, pallets	——	40,000
E, E' Space cost @ 55¢ a sq. ft.	$434,595	$572,000
F, F' Trucks	10	11
G, G' Operation, per hour	$6.	$6.
J, J' Hours operated, per truck per year	4,160	4,576
K, K' Units handled	same(1)	same(1)
L, L' Administering	——	$3,120
M, M' Receiving pallets returned from customers	——	$3,120

By the formula given in the box, the C/E ratio from these figures is 1.46. It says "adopt the palletless method."

Note that if figures for an item are the same in both columns, they can be considered equal to 1. Though this will change the size of the quotient, it will not change the YES-NO answer which it gives.

Actual Results

Real-life results show the gains you can get from palletless methods when conditions are favorable. Here are some reliable figures from several industries:

1. **A wine maker** handled cases manually. It took 6 to 8 man-hours to unload a truck. Warehouse held 36,000 cases. Change to standard attachments (carton clamp and sideshifter) slashed unloading time to less than 1

man-hour, increased warehouse capacity to 60,000 cases.

2. **To handle plate glass** in crates as large as 105" x 160" a warehouse bought a crane attachment for a lift truck. This cut handling costs 80 percent.
3. **A textile mill** bought a truck attachment to handle warp beams (reels of yarn) weighing up to 1 ton. This halved labor cost for handling.
4. **A food manufacturer** stopped loading cartons into boxcars by hand, used a load-pushing attachment on a fork lift instead. They cut loading time from 8 man-hours to 4.
5. **To store heavy chairs** furniture manufacturer bought a clamp and rotator. These cut labor costs 45 percent. User now stores twice as many chairs in same space.
6. **A distiller** reduced truck loading time from 90 minutes to 45 minutes by using glass manufacturers' method of handling cartons (flaps of cartons in lowest tier overlap, special forks grip this tier). Method also raised warehouse capacity from 120,000 cases to 197,000 cases, and knocked 4 cents a carton off the cost of handling empties.
7. **A fruit grower** saved 150 man-hours a week, gained 30 percent in storage space, by replacing 50 lb.-capacity manually handled field boxes with 800-lb. boxes handled with clamp and rotator. He still palletizes smaller boxes for outgoing shipment.
8. **A food wholesaler** cut costs of loading and unloading cartons of canned goods from $63.92 a car to $19.40, by a system of unitized loads. The system also reduced in-transit damage.

Photos and data by courtesy of the following companies (numbers refer to case history data): *Allis-Chalmers (2); Automatic Transportation Co.; Baker Industrial Trucks; Basiloid Products Corp.; Cascade Mfg. Co. (4); Clark Equipment Co. (6); Heifred Corp. (5); Lewis-Shepard (3); Little Giant Products, Inc. (1 and ratio example); Unit Load Car Corp. (8); Yale & Towne Mfg. Co. (7).*

Automatic Transportation

SYSTEM APPROACH—Storage Rack Design

SYSTEM APPROACH—Vehicle Design

Automatic Transportation

Little Giant

CARTON CLAMP

Yale & Towne

TAKE-IT-OR-LEAVE-IT

Allis-Chalmers

SPECIAL PURPOSE ATTACHMENT

COLLAR GRIP—Lifting Carton

Basiloid Prod.

COLLAR GRIP—Attachment Design

Basiloid Prod.

PALLETIZING brings benefits beyond price

Some advantages of pallet systems worth remembering, though you can't put a price tag on them

NOT ALL THE GAINS you get from a good handling system can be quantified in dollars so you can make them show in an economic analysis.

One of these is system versatility—what dollar value can you put on the fact that a system can easily adapt to handle any unexpected changes in your product size or shape?

Such adaptability, and many other hard-to-evaluate benefits, come from pallet handling. These may not show up when you use a gage like that suggested in the preceding article. While the economic benefits of pallet use are often terrific and settle the question once, there are other cases in which the economic analysis doesn't answer the question. When this happens it is wise to take into account the advantages in the list below. ♦

HARD-TO-EVALUATE GAINS YOU GET FROM PALLETS

1. Pallets protect loads from damage by handling equipment, lateral crushing forces, etc.

2. The load on the pallet can vary in shape, size, quantity, but the pallet remains a uniform load unit. (E.G. Your pallet can hold 1 big electric motor, or 6 smaller ones, but you still have "a pallet load" as the unit you handle.)

3. Irregular objects become stable loads when palletized. You can increase the stability by strapping them to the pallet if necessary.

4. Because pallets protect and stabilize the load, you can handle palletized loads at the maximum speed of your fork trucks and conveyors.

5. When you use pallets your system usually fits with the systems used by your vendors and your customers. Most of your customers are equipped to handle palletized loads—even retail grocers are going to pallets—and many of your suppliers prefer to ship to you on pallets.

6. Pallets help you apply a single basic system throughout your operation. You may be able to receive and store palletized raw materials, supply your production using pallets, store and ship on pallets.

7. Pallets can be stored, or loaded on vehicles, touching side to side, because you don't need to leave any space for clamps or attachments.

8. In storage pallets tie stacks of products together, stabilize the stacks.

9. Maintenance is simple. Pallets do not add to the burden on lift truck electric or hydraulic systems.

10. Aisle widths can be kept to a minimum when you handle on pallets.

11. Lift truck operators need only skill, that of handling pallets. If you have several operators, they are 100% interchangeable on your pallet handling operations. They don't need extra training or practice.

12. Pallets protect the bottoms of loads from moisture, dirt, grease, etc. if the load is set down on a wet or dirty floor.

13. Wetting does not damage a wooden pallet. It can be stored outdoors, loaded or empty.

14. When goods are stored in stacks pallets promote ventilation, uniformity of temperature and moisture content of the product.

Waste product to profitable item —

Michigan handles hot slag so fast owner doubles plant capacity

With a big assist from a high-capacity Michigan Tractor Shovel, the steel industry's biggest waste product—blast-furnace slag—is being transformed into a profitable item—lightweight aggregate—by Vulcan Materials Co—Consumers Co Division, Gary, Indiana.

The Michigan has "contributed" such high-speed loading that the slag operation a year ago doubled its plant capacity.

4800 tons daily

In typical operation, material arrives in molten state from U.S. Steel mills, 10,000 to 40,000 cubic feet per 24-hour day. Dumped and dragline-piled, it cools and expands—then in a light, though still hot form is sent to the crusher via Michigan-loaded trucks.

The Michigan works round-the-clock, loading with each pass of its 3 yard bucket some 4 tons of aggregate. A 10 ton truck is heaped to overflowing in three passes and only 1¼ minutes . . . the company's 20 ton truck takes five passes, about 2¼ minutes. Though this bigger hauler has high sideboards, the Michigan has no trouble feeding it. The "secret" is a high-lift attachment which adds about 3½ feet to the Tractor Shovel's standard dumping height. Production, stockpile to crusher, thus averages about 4,800 tons per day—all the plant can handle and more than twice what the slag plant formerly shipped.

Speed squelches fires

The problem of fire has been overcome too. At times the slag, still 700 degrees hot when loaded, ignites a tire or two. When this happens, the operator merely flips into reverse (no foot clutching necessary with the power-shift, torque converter Michigan). The machine moves immediately and its weight quickly stamps out the flames.

Mobility pays off too. In "free" time during its 24-hour-per-day, 6 to 7 day-per-week schedule, the 27 mph Michigan does other chores around the plant site. Among them: loading the finished product. Spotting railroad cars. Cleaning around the crusher. Towing stalled equipment.

Why not see for yourself what this speed and versatility can do to improve *your* production picture? We'll be glad to demonstrate any of our nine models at your convenience. Write to arrange time and place.

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY

Construction Machinery Division

CLARK® EQUIPMENT

2445 Pipestone Road
Benton Harbor 43, Michigan

In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

Circle **27** on Reader Service Card

PROJECT Upgrade

In this fifth article of Project Upgrade Ralph Sims reviews the revolution in documentation and data processing, and tells you how to make these changes help you in MATERIAL FLOW MANAGEMENT

Material control and the paperwork problem

— your key to good material handling

By **E. RALPH SIMS, JR.**, *Consulting Management Engineer*

AN OLD MANUFACTURING and distribution maxim says it is cheaper to move paper and people than to move product. Electronic data processing equipment and high speed transportation make this adage increasingly true. Today you can transmit order information from any point on the globe to any other point at the speed of light, convert the signal into a document at more than 600 lines a minute, and send the document to any point in your plant, *via* pneumatic tubes, at a mile a minute.

While this fantastically rapid transmission of information takes place you can simultaneously calculate, adjust, interpret, and compare the information sent. These are not bizarre visions of the future—these techniques are here!

Quick Communication—Smaller Stocks

These new communications techniques are transforming industrial distribution and material handling. Our system of distribution and transportation grew out of the need for field inventories to overcome the time lags of the horse and buggy and steam locomotive era. Today electronic communications, and high speed transport by air, highway, and rail have slashed the lapse of time between entry of a customer's order and his receipt of the goods. This speedup has diminished the need for field stocks.

The same change has taken place in the factory. Production information and internal transportation instructions are transmitted instantly. The use of in-plant radio, facsimile transmission, teletype, and other techniques makes it possible to schedule and control product flow precisely. Using computers to maintain inventory information, presort and prewrite order information, to make schedules and to improve billing procedure, is almost common-place.

High Speed Data Processing Cuts MH Costs

Today the whole trend in controlling material handling and distribution is toward the use of high-speed office machines. These prearrange information in many ways to reduce the cost of handling. Electronic data processing sets up production schedules that minimize in-process banks of parts and multiple handling. Prearranging data cuts down on walking, order-filling, and transportation costs by putting order data in proper sequence. The office machines can "know" where material is, and avert the cost of misplacing merchandise, hunting, and re-warehousing. Computers prewrite orders so they can be prerouted and prescheduled into carriers to avoid multiple handling and trial and error loading.

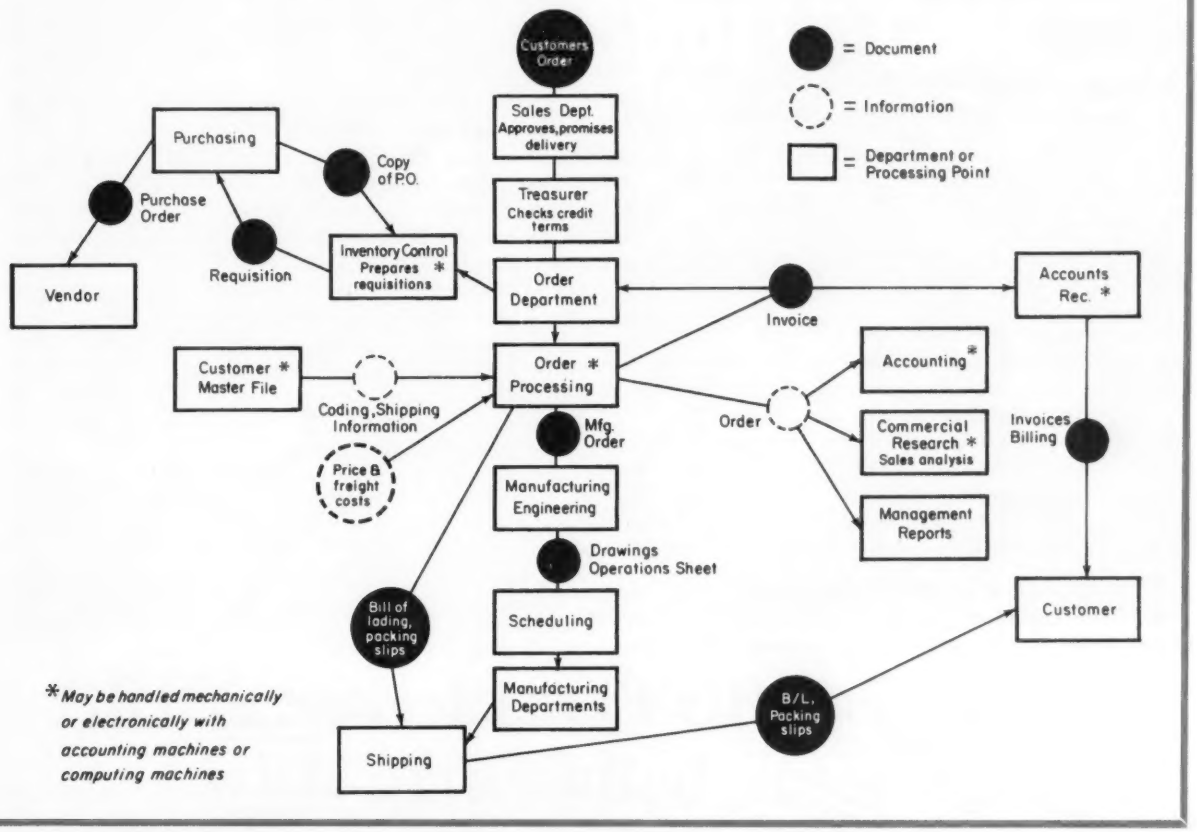
You Must Know the Documents

The trend to mechanized data processing forces you, as material handling engineer, to understand thoroughly the equipment and systems now used in advanced office procedure. You are concerned with documents, and these are of primary importance:

1. **Customer order—invoice—billing**
   Procedure for these three related documents is the nerve system for warehousing and order-processing. The material handling man must know why and how

these papers originate and what customers expect of them. He must understand their distribution, and the time element in distributing the information they bear to the right people at the right time. He should master the art of designing good forms, and comprehend how order, invoice, and billing forms coordinate with material handling documents.

2. **Manufacturing and shipping orders**
These documents give the material handling engineer



PRINCIPAL FLOW OF DOCUMENTS, INFORMATION—generalized to show main flow in manufacturing company.

Copyright 1961 E. Ralph Sims Jr. & Associates

authority to perform work. He must understand the procedures followed after an order is issued, and the requirements which the order states or implies. This understanding is essential to effective material handling management.

3. **Bill of lading and packing slip**
Shipping depends on these documents. Note also that the bill of lading may be a financial document, and its use as such should be understood.

4. **Factory control documents**
Material requisitions, pallet tags, bin tags, etc., must be designed to fit the specific operation. They are not standard throughout industry.

Know Equipment for Processing

In many companies machines, not clerks, now prepare documents. New mechanical techniques employ a variety of machines to automate document preparation. The punched paper tape is becoming a common language by means of which one machine can transfer data to another. It can run Teletypes for long distance transmission. Flexowriters read tapes and reproduce the data as input for almost any business machine. Tape-to-card converters transfer taped information to punched cards for use in tabulating equipment. Punched cards are another means by which machines can communicate with each other. Magnetic tape, drums, discs, cores, and cards, though primarily memory devices, are also media for machine-to-machine communication.

As data transmission media punched cards, punched tape, and magnetic memories are interchangeable throughout most existing equipment. They can be used as input or output for punched card or electronic computer equipment, or as input or output for the "hard-copy" accounting-machine type documentation. The large electronic computers, the medium computers, and the small hard-copy units represent descending levels of sophistication in mechanical data processing.

Computer Benefits at Bargain Rates

Many companies shy away from electronic data processing, fearing the large investment in a computer. There is a way to eat the EDP cake, and keep

FOUR COMMANDMENTS on PAPERWORK

If you must write it, write it only once.

If you must read it and remember it, read it and remember it mechanically.

If you must transmit it, transmit it electronically.

If you must document it, document it mechanically for mechanical memory.

—from an address by E. Ralph Sims, Jr. to the 70th annual meeting of the Merchandising Div., American Warehouse Association, April

your investment capital too: use a service bureau for the processing. You buy only low-cost equipment, retain the versatility of a manual system, and at the same time develop the advantages of EDP for your operation. You simply record your data on one of the media mentioned above (punched cards or punched tape), then deliver your cards or tape to the service bureau and hire use of their computing and analysis equipment on an hourly basis.

Key to Control of Material Flow

It is now essential that the material handling engineer know in general what the various computers and office machines will do. He will be directly influenced by the type of equipment which his company uses, and he should have a voice in selecting it. A leading maker of computers has found that the warehousing function is the largest user of its medium size machines. This explains why the material handling man must know the capabilities and limitations of the various types of equipment. It follows that he must also comprehend the significance of the documents which EDP produces. He must know enough about office procedures and the design of forms to enable him to extract both the obvious data and the byproduct information he needs for material flow management and control.

On a more personal basis you will find that as you master the paperwork and data processing procedures you win the key to control of material handling. The concept of reducing material handling costs through tighter control can be implemented only by close coordination, rapid data preparation, and transmission, and shortening the time lag in producing documents. Electronic and mechanical data processing are making giant strides toward this goal. The material handling engineer will find in the new data processing methods the means of becoming in fact as well as title "manager of material flow." ♦

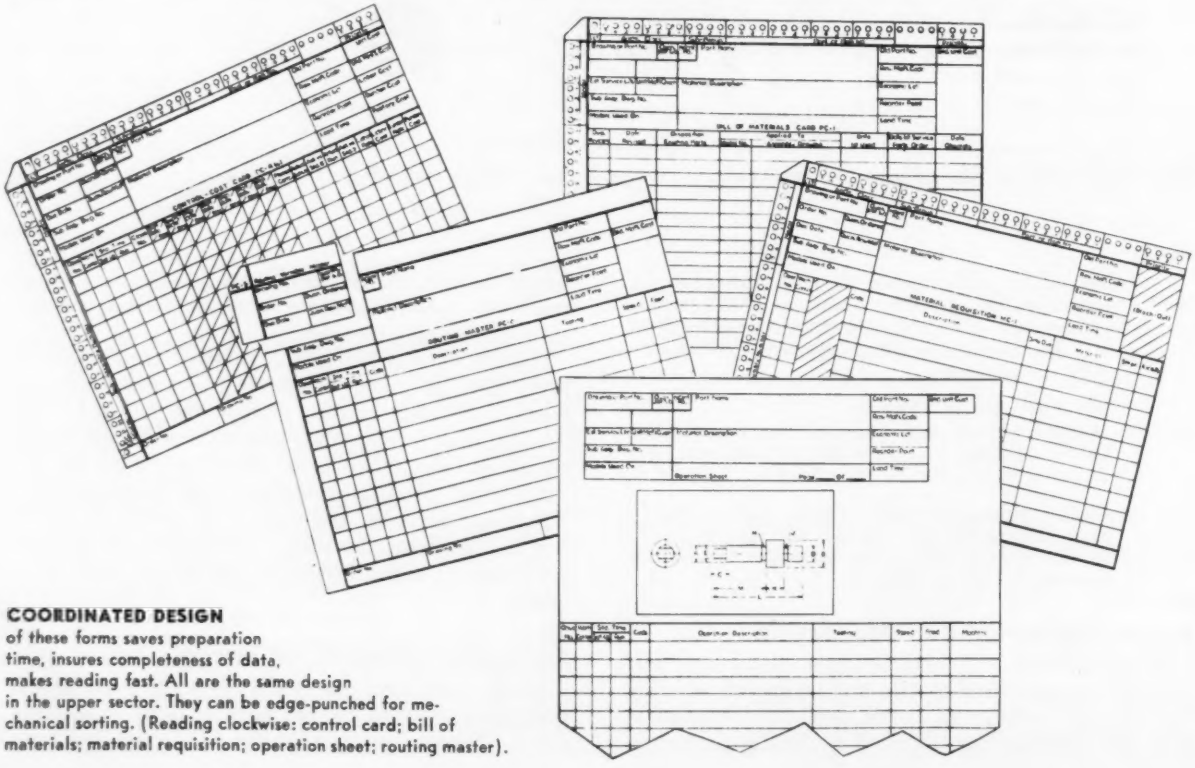
FOR FURTHER READING:

DATA PROCESSING: *1960 Proceedings. Charles H. Johnson, Ed. 256 p. National Machine Accountants Assn. Mt. Prospect, Ill. 1960.*

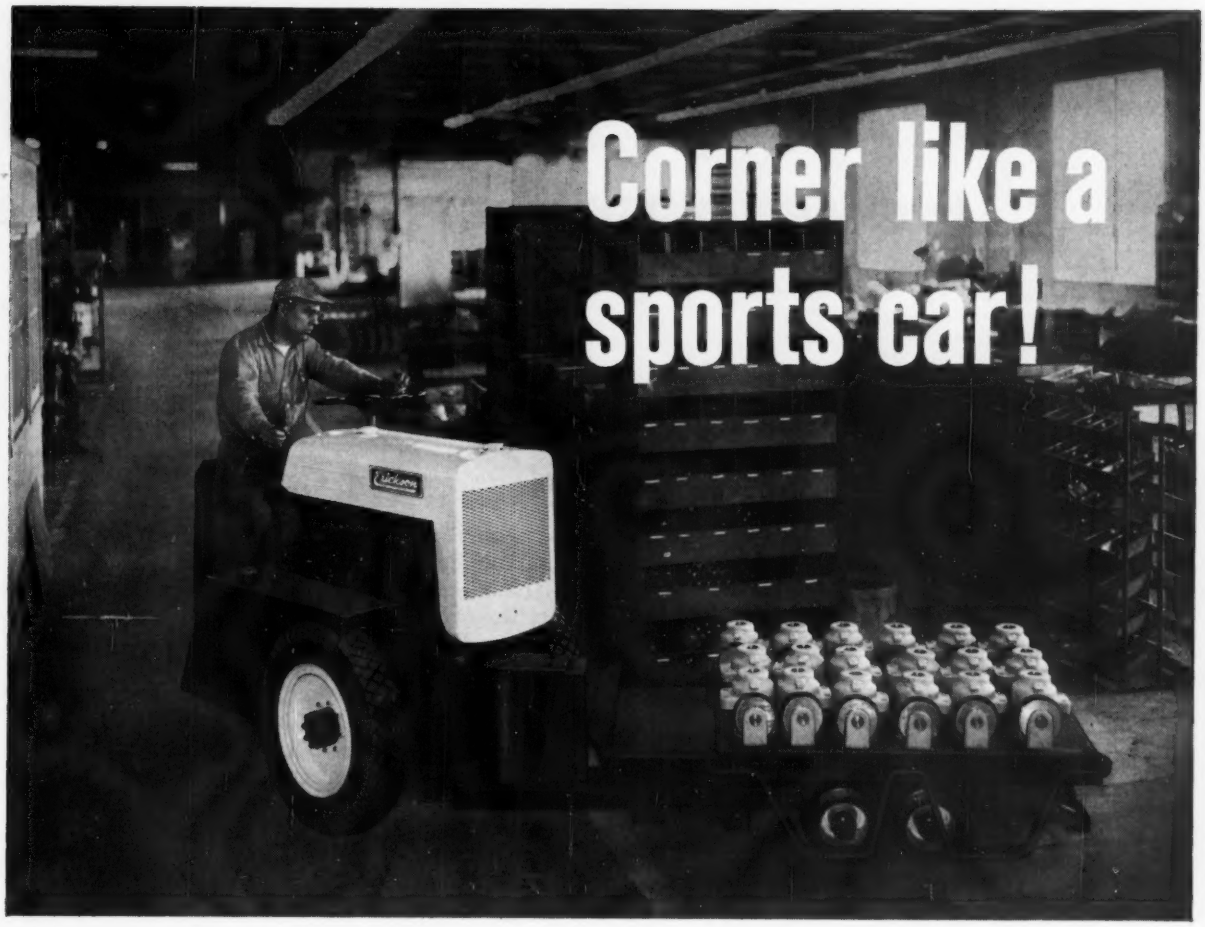
COMPUTERS AND PEOPLE, *by John A. Postley. 246 p. McGraw-Hill, New York. 1960.*

ELECTRONIC BUSINESS MACHINES, *J. H. Leveson, ed. 272 p. Philosophical Library, New York, 1960.*

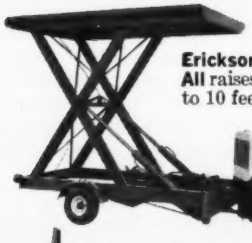
INSTALLING ELECTRONIC DATA PROCESSING SYSTEMS, *by Richard G. Canning. 194 p. John Wiley, New York, 1957.*



COORDINATED DESIGN of these forms saves preparation time, insures completeness of data, makes reading fast. All are the same design in the upper sector. They can be edge-punched for mechanical sorting. (Reading clockwise: control card; bill of materials; material requisition; operation sheet; routing master).



ERICKSON PLATFORM TRUCKS
with articulated steering



Erickson scissor-lift Kart-All raises the load platform to 10 feet or higher.

Erickson straddle frame Power Kart handles concrete structural members, other bulky and awkward loads.

Pivot in, pivot out. Snake the load platform under a pallet—lift and run with it down aisles too narrow for any other lift truck—corner 90° in a 90″ radius to spot loads in any nook and cranny!

You can handle materials like that with Erickson platform trucks. The exclusive articulated pivot between load platform and tractor coupled with power steering gives you close quarter maneuverability no other truck can approach. Because the load is centered directly over the load wheels, no counterweight is necessary. This elimination of dead weight allows savings of *up to 50%* in initial cost and operating expense as compared with conventional fork lift trucks.

Erickson platform trucks can be customized to your needs with platform of almost any length and load capacities from 5,000 lbs. to 20,000 lbs. and higher. Write for complete, detailed information. Erickson Power Lift Trucks, Inc. 215 St. Anthony Blvd., Minneapolis 18, Minnesota.

ERICKSON *Customized Lift Trucks*

Circle 43 on Reader Service Card

How to select a clamshell

By **WILLIAM J. JENKINS,** *General Manager, Erie*

ONE OF THE MOST FAMILIAR pieces of equipment used with some form of lifting device to gather, lift, and transfer bulk materials is the clamshell bucket. It is a key piece of equipment in stockpiling as a material handling function.

There are two types of clamshells: rehandling and digging buckets. A rehandling bucket handles free-flowing materials such as sand, grain, ashes, or coal. Typical jobs: Loading sand into a dump truck, transferring grain from a ship's hold to an elevator, moving coal or light ores to a stockpile. Digging buckets do the heavier jobs such as digging and dredging packed, hard, and heavy material.

The buckets actually overlap in the classes of work they do. (See Tables A and B.) A heavy-duty rehandling bucket might be used for ores or heavy aggregate. Add teeth to a standard rehandling bucket and you can do light excavating. It's best to get the bucket manufacturer's recommendation in such cases.

Main differences between digging and rehandling buckets are weight and ruggedness. Rehandling buckets are generally made of lighter materials, usually do not have teeth. Digging buckets are far more rugged, heavier, and as a rule, have hardened steel teeth to penetrate the denser materials.

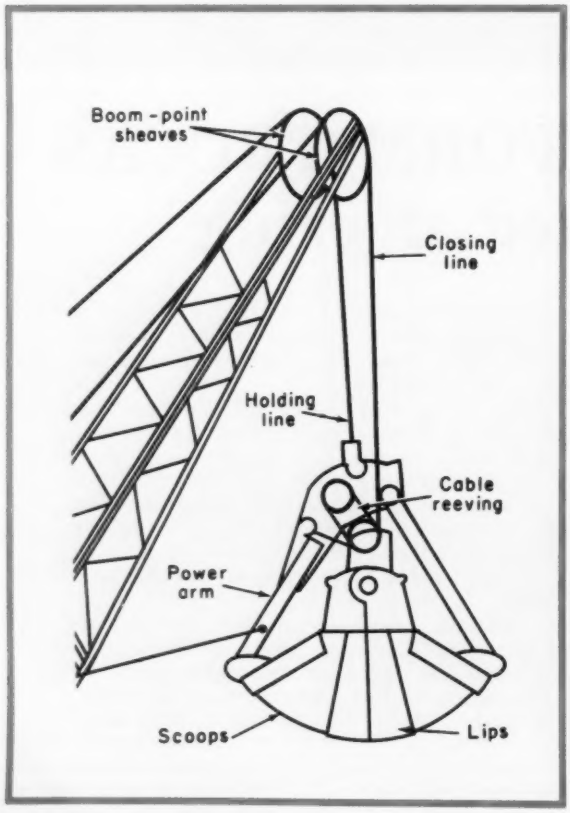
When you choose a bucket, these are the four most important considerations:

Material Density—Each material resists penetration. The resistance depends on density, shape of the pieces, compactness, etc. A very light material, such as sawdust (density 20 lb. per cu. ft.) is easy to penetrate, and you would use a lightweight, large-capacity bucket. Clay requires a heavier bucket, because it's difficult to penetrate.

Bucket Weight—The weight helps it penetrate the material. Weight plays a part in determining the closing force you can apply. A cable pulling upward closes the bucket, so the heavier the bucket, the harder you can pull. A heavy bucket loaded with rock or clay has a greater closing force than an empty bucket.

Bucket Size—For light materials use a large-capacity bucket so you can move more material per trip. Other things being equal, the force required to close a bucket goes up with the length of the scoop lip. A bucket with a long lip requires more closing force. Dense material will require a narrow, heavy bucket, even at the sacrifice of capacity.

Bucket Contour—As the scoops of a bucket close, the material must be pushed back into the scoops. If the scoops have deeply curved bottoms, it'll be more difficult to push the material up and back. Manufacturers can lessen the curvature of the scoop, and that reduces the force needed to close the scoops. A deeply curved bucket lets you handle greater volume, but you may be willing to sacrifice volume for reduced closing force when handling very dense materials.



TYPICAL crane boom has two winch lines. Holding line attaches directly to top of bucket. Closing line goes through sheaves.

bucket

Strayer Co.

How To Improve Digging Action

You can add teeth to make certain buckets dig better. You can see the advantage of teeth by comparing the effort it takes to push a spading fork into the ground with the effort it takes to push in a square-edged shovel.

The shape of the bucket also helps the bucket to dig. A round-nose bucket with cured lips will penetrate dense, hard-packed material more easily than a straight-lipped, square-nose bucket, just as a curved-bladed spade digs easier than a square-edged shovel.

You can add counterweights to a bucket. Center-mounted counterweights will help the bucket open quicker. They're especially important when the bucket discharges high up, close to the boom. The opening power of the unweighted bucket may not be sufficient to pull the closing line up the boom. Centrally-mounted counterweights also help the bucket penetrate.

When you handle materials that staunchly resist penetration, counterweight the scoops directly over the cutting lips for greater penetrating power. These counterweights not only add cutting power, but also reinforce the lips.

It's important also to consider abrasion when you select a bucket. Highly abrasive materials will quickly wear through the scoop and lips of a bucket. Some-

TABLE A

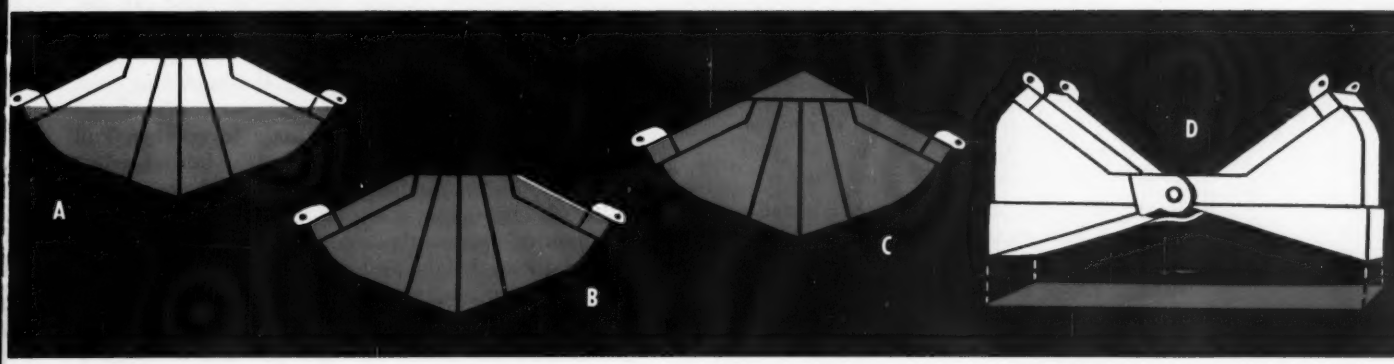
TYPICAL CLASSES OF REHANDLING BUCKETS

Series	Uses
EXTRA LIGHT	Stockpiling free-flowing materials up to 75 lb. per cu. ft.
LIGHT	Unloading and rehandling free-flowing materials up to 100 lb. per cu. ft. Teeth can be used, but are generally not recommended.
EXTRA LIGHT, WIDE REHANDLER	For silt, ashes, coal, coke, fertilizer and similar materials. Handles larger loads than the light or extra light series. Limited to materials weighing under 100 lb. per cu. ft.
STANDARD	Unloading, stockpiling, and when equipped with teeth, for some light excavating. Will work with loose free-flowing materials weighing up to 130 lb. per cu. ft.
WIDE REHANDLER	Rehandling materials from stockpiles, barges, gondola cars, or wherever a large deck area is required. Can handle materials weighing less than 130 lb. per cu. ft.

TABLE B

TYPICAL CLASSES OF DIGGING BUCKETS

Series	Uses
GENERAL PURPOSE	Rehandle, excavate, and dredge loose materials. Will work well with materials weighing up to 130 lb. per cu. ft.
HARD DIGGING	For medium dredging service, for handling rock and broken slag, and for general excavating purposes. Suitable for loose materials not exceeding 175 lb. per cu. ft.
EXTRA HEAVY DUTY	Recommended for tough excavating jobs and dredging of materials weighing 200 lb. per cu. ft.
DREDGING TYPE	For very heavy duty, such as dredging or rehandling heavy ores and similar materials. Also suited for digging materials weighing up to 250 lb. per cu. ft.



HOW TO FIGURE bucket capacity: (left to right) A. Water Level; B. Line of Plate; C. Heaped Loads; and D. Deck Area. When handling light materials, use a large-capacity bucket in order to move more material per cycle.

times you have to buy a heavier bucket to resist abrasion. Where abrasion may be specially severe, you can get reinforced buckets or buckets made of alloys.

Crane Characteristics and Capacity

The crane and its capacities have direct bearing on the selection of a bucket. You also have to consider overhead clearances, heights of stock piles, sizes of bins, hoppers, trenches and pits.

The gross weight of the bucket and load must never exceed the safe working capacity of the crane. The safe load specifications of the crane generally appear on the nameplate. You also can get the facts from the manufacturer or his catalog.

The bucket manufacturer will furnish an accurate weight of the bucket. To this, you have to add the weight of the teeth, counterweights, other accessories. Determine the specific gravity (pounds per cubic foot) of the material you're moving, and calculate for the weight of the load on the basis of bucket capacity. The combined weight of the bucket, all accessories, and the load itself must not exceed the safe working load of the crane at maximum operating radius (as applicable to clamshell operation).

Estimating Capacity

It's not difficult to figure this capacity. Assume that you are going to handle rock salt with a 10-ton, truck-mounted crane. The salt weighs 75 lb. per cu. ft. You want to select the biggest safe bucket. The outreach of the crane will never exceed a 25-foot radius. At that outreach, the safe working load is 14,000 lb.

RULES OF THUMB FOR PICKING A BUCKET

1. If the material weighs 60 to 70 lb. per cu. ft. or under, and if you can force a snow shovel into it with ease, then select extra-light or light series bucket, depending on the amount of abuse you'll give the bucket.
2. If the material weighs about 100 lb. per cu. ft. such as sand or gravel, and you can force a snow shovel or square-edged shovel into it with ease, select the standard re-handling bucket.
3. If the material offers so much resistance that you have to put your foot on the square-edged shovel to penetrate it, then select the general purpose type.
4. If the material offers so much resistance that you would use a pick, and if you can penetrate the material up to the pick handle, select the hard digging bucket.
5. If the material offers so much resistance that you have to use a heavy swing with a pick to penetrate 3 or 4 inches, select the dredging type bucket.
6. If the pick bounces, don't use a bucket. Blast.

You're handling light and free flowing material, so you'll use a rehandling bucket. Because the work is light, a light series bucket will do. The manufacturer's catalog list 10 sizes of buckets in this series. You want to handle the biggest load, so look at the heaped-load capacity. It runs from 110 to 330 cu. ft.

These buckets weigh from 5,700 to 16,000 lb. The smallest bucket has a heaped capacity of 110 cu. ft. and weighs 5,700 lb. Rock salt weighs 75 lb. per cu. ft. A heaped load will weigh 8,250 lb. Add that to the bucket weight and the total, 13,950 lb. is within safe working limits of the crane.

Another way to figure bucket capacity is to figure the volume to be moved during a given period. This determines both the selection of the crane and the bucket. You have to know the cycle time for the crane and operating speed of the bucket. With modifications, such as adding a power wheel, you can work the bucket faster. There are many other external factors that affect selection of the crane and bucket besides safe capacity. By all means, confer with a bucket specialist before you buy.

Clearance Factors

Clearance affects bucket selection. The height of a 2-line bucket is greatest when it's open. When figuring headroom between the top of a bin, wall, or other obstruction and the underside of the crane boom, the custom is to allow a clearance of 1½ times the height of the open bucket.

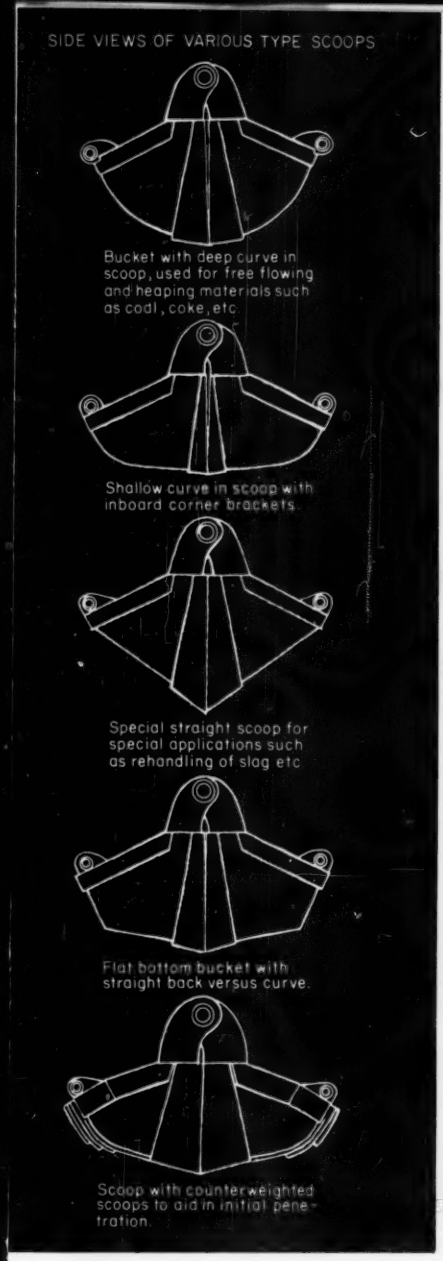
Width and length of the bucket may be limited by the shape of the bin, hatch, or pit. In trenching, the width of the bucket determines the narrowness of the trench.

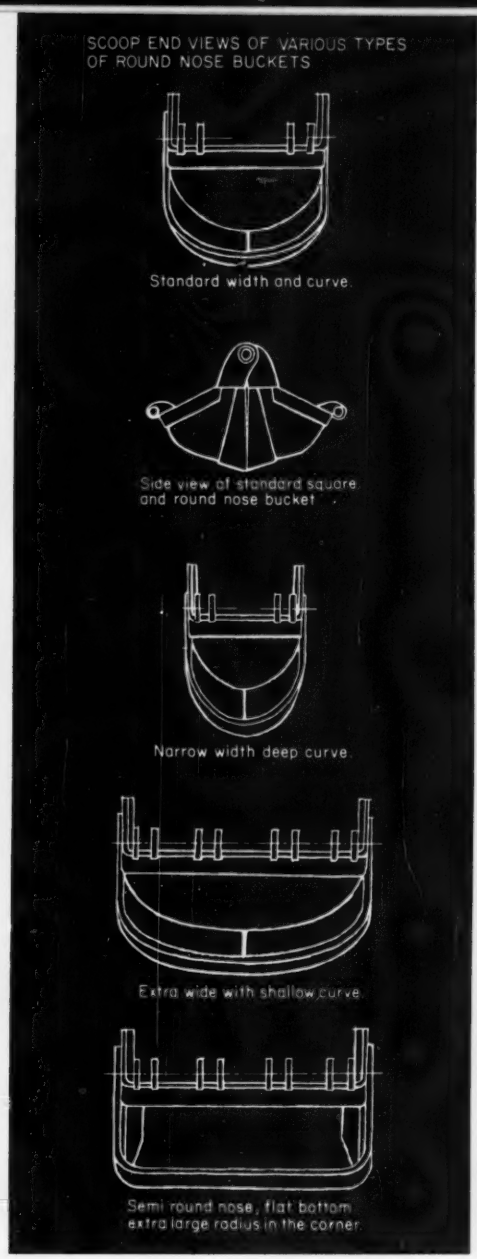
We have confined our discussion to the 2-line bucket. There are among others: the single-line, 3-line, and 4-line, and the electric-powered bucket. Whether you use one type or another depends largely on your crane.

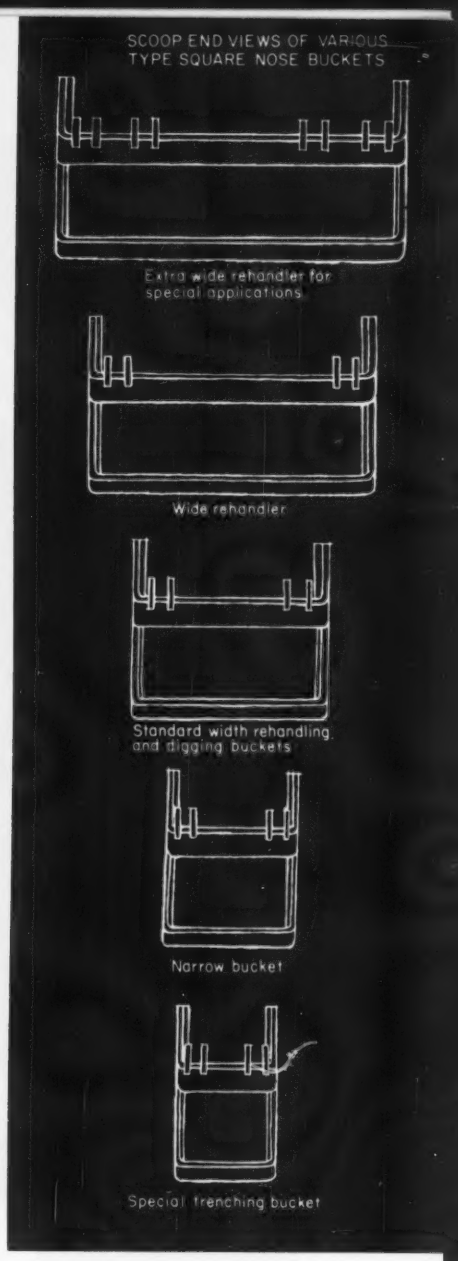
On cranes with a single hoist line, you must use a single-line bucket of either hook-on or direct-reeved type. The hook-on bucket goes on and off instantly. It's valuable for intermittent bulk-handling jobs. The direct-reeved bucket works best where the crane does only bucket operation. It can be reeved directly to the hoist drum with either one or two parts of line, whichever is best suited to the type and lifting capacity of the hoist.

The single-line bucket works the same as the 2-line bucket, except that one line serves both the holding and closing function. This works with a dog and latch plus a lever. Lower the bucket in open position until it hits the pile. Continue lowering and an auxiliary arm engages the main lever arm. Pull up and close the bucket. Then raise the bucket, move it to the point of discharge, trip the latch, and allow the bucket to open. You can get manual or electric trip lines or operate them automatically at some prescribed lifting height or bucket position.

You normally use 3- and 4-line buckets on overhead cranes. Here again, they work like the 2-line bucket, except that with the 3-line type, you use two holding lines. On the 4-line type, you use 2 holding and 2 closing lines.


SIDE VIEWS OF VARIOUS TYPE SCOOPS
Bucket with deep curve in scoop, used for free flowing and heaping materials such as coal, coke, etc.
Shallow curve in scoop with inboard corner brackets.
Special straight scoop for special applications such as rehandling of slag etc.
Flat bottom bucket with straight back versus curve.
Scoop with counterweighted scoops to aid in initial penetration.


SCOOP END VIEWS OF VARIOUS TYPES OF ROUND NOSE BUCKETS
Standard width and curve.
Side view of standard square and round nose bucket.
Narrow width deep curve.
Extra wide with shallow curve.
Semi round nose, flat bottom extra large radius in the corner.


SCOOP END VIEWS OF VARIOUS TYPE SQUARE NOSE BUCKETS
Extra wide rehandler for special applications.
Wide rehandler.
Standard width rehandling and digging buckets.
Narrow bucket.
Special trenching bucket.

Due to space limitations on overhead cranes, it may be necessary to provide two small-diameter cable drums instead of one large one to obtain required lifting capacity. A 1-inch line might be required to handle rated capacity, but a drum to hold the cable might not fit crane confines.

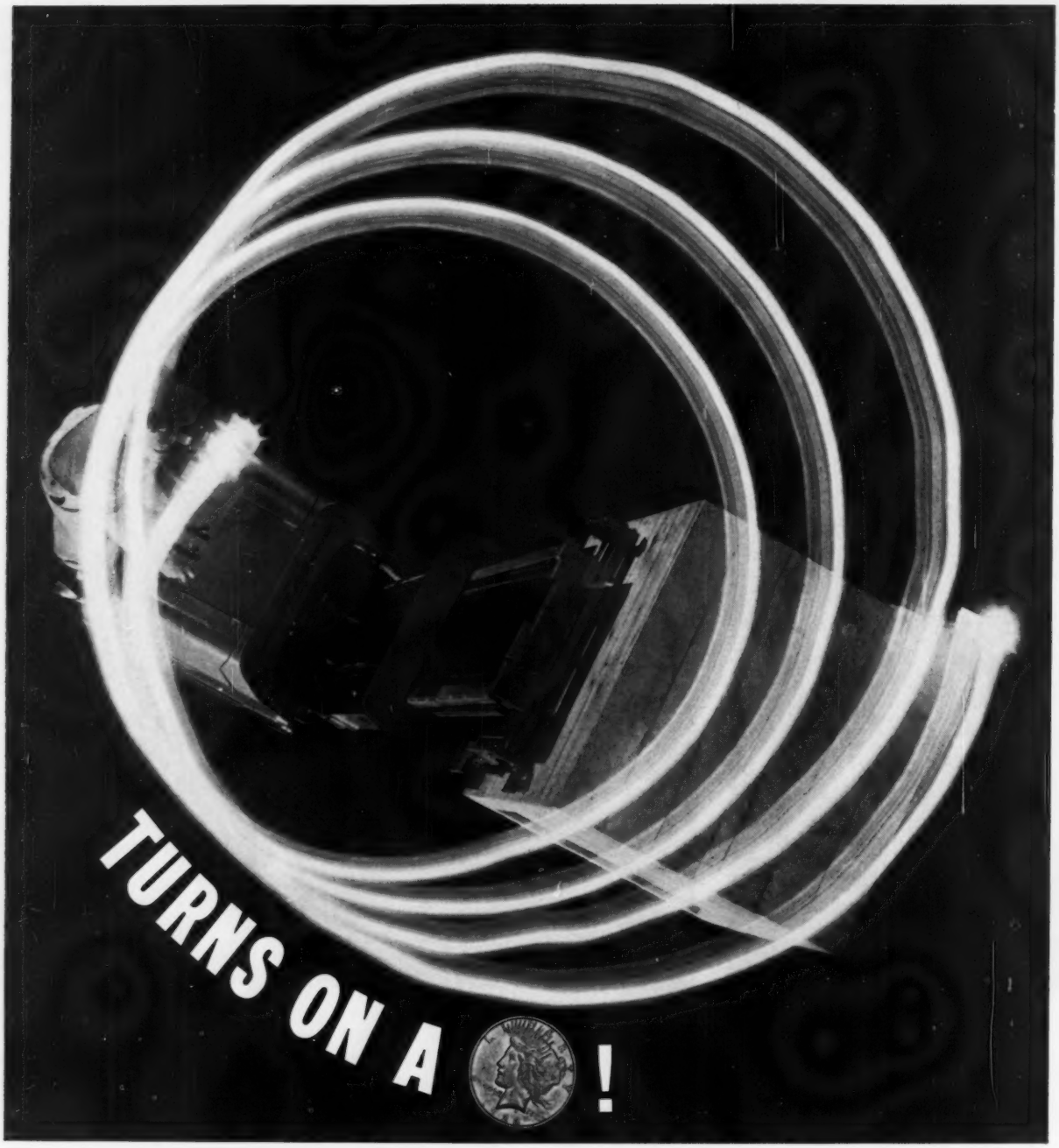
Then, two ½-inch lines will do the job. To use the full crane capacity, attach both lines to the bucket. You secure an equalizer bar to the top of the bucket to receive the two closing lines. Likewise, 4-line buckets have both an equalizer bar and have a double set of sheaves to accept the two closing lines.

Electric Buckets

Electric motor-driven buckets work also for a clamshell when only one hoist line is available. This bucket works like the standard 2-line, except that a motor-driven mechanism built into the bucket does the closing. A flexible conductor cable supplies the electric current for the bucket motor.

Although it's the most costly type available, the electric bucket has several advantages. This bucket has more weight because of the added motor and drive. You can control the bucket opening closely with a rheostat. It easily interchanges with an electromagnetic load-handling device. Also, the electric bucket operates with the lowest headroom of all the clamshell bucket varieties; this is especially useful in overhead crane operations. ♦

U.S. Department of Commerce has added crane rating classifications to the industry standard for power cranes and shovels. You can get Commercial Standard CS90-58 complete with this amendment from the Superintendent of Documents, U.S. Government Printing Office, 20 cents each.

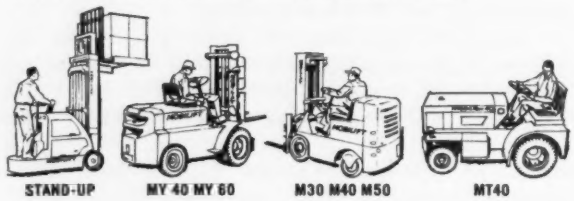


Mobilift's exclusive Stand-Up Truck pivots in 55 inches, threads 3 foot aisles . . . solves crowded warehouse problems. Stand-Up Trucks are as small as 33″ wide and 64″ long, less forks. They have zero inside turning radius. They can corner in just 52″, turn around in just 9 feet, thread aisles only 35″ wide. Yet they can lift 2000 to 3500 lbs. as high as 17 feet, depending on model.

A man can learn to operate a Stand-Up in one day. And he's mobile and safe; he can get on or off in a step.

The Stand-Up Truck gives you all these cost-saving advantages—plus unique Lev-R-Matic transmission and high free lift. *Yet it costs less than any other gas-operated truck.* Whether it's a sit-down or a stand-up truck you need, we can solve your handling problem efficiently and inexpensively.

For full information at no obligation write today. Distributed by John Morrell Manufacturing Co., a subsidiary of MOTEC INDUSTRIES, Hopkins, Minn.



MOBILIFT MOTEC

Materials Handling Equipment Division of MOTEC INDUSTRIES

Circle **68** on Reader Service Card

American Agile Corp.

SAMPLES of the shapes and sizes in which material handling containers can be made from polyethylene in the Thermofusion process. They range from a 5 to a 55-gallon container. The process can make them in capacities up to 1,000 gallons.

New production process makes large plastic containers

THERMOFUSION,* a new method of plastic production, is helping expand in-plant and shipping container uses. The process was developed in Europe and was recently brought to this country.

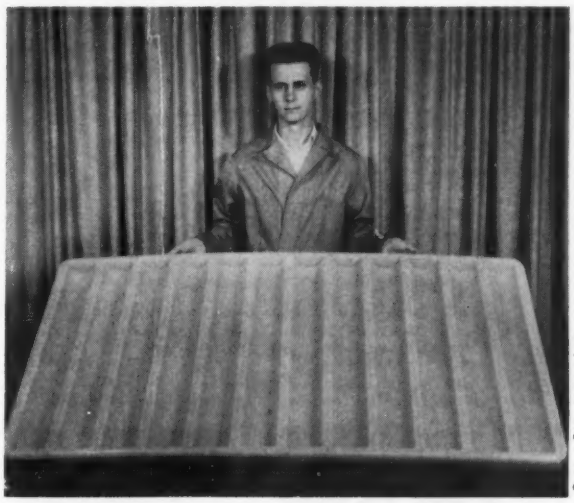
Containers are being developed for handling food and chemicals, and any other products which need a sanitary, nontoxic, noncorrosive container.

Some products now being made in the US:

- Round and rectangular containers in sizes to 1,000 gallons. They can be adapted to different uses since you can add inlets, outlets, drains, overflows, and value connections.
- Rectangular containers to use on dollies or other wheeled equipment. They can also be used on supported and unsupported pallets with folding wire mesh sides for use in meat and food packing or processing. Capacity to 2,000 lb. bulk or liquid, tapered so they can be nested when empty.
- Rectangular containers with molded caster bolts in the bottom to make a versatile floor truck.
- Polyethylene tanks to replace stainless steel tanks for hot pickle brine.

The main feature of the Thermofusion process is that it can fabricate polyethylene into ware of larger sizes than heretofore. Principle: oven heat fuses powdered polyethylene to the wall of a metal mold. It involves no pressure as do most other plastic forming processes, so there are no stresses to worry about. Mold costs are said to be inexpensive compared to molds used in other methods of plastics forming. In Europe, Thermofusion is called the Engel process, after its inventor, Thomas Engel. Its main interest to you is that it permits larger sizes of polyethylene containers.

The Spencer Chemical Company bought the process (the US licensee) from the Vaessen-Schoemaker Company of Holland. Spencer says "This process permits



Space Structures, Inc.

SPECIAL DESIGNED food-handling container is easily turned into a finished product. This 12-section tray is light in weight despite its size and wall thickness. Half-round design makes it easy to clean.

*A service mark of Spencer Chemical Company

WHO USES

Rubbair®

the true door . . . not a curtain. Door?

A Rubbair Door installation at the warehouse of S. Kann & Sons Company, Hyattsville, Maryland

THE S. KANN SONS CO.

Washington, D.C.

READ THIS ACTUAL CASE HISTORY:

In response to your letter of March 25, we are happy to inform you that we are very pleased with the Rubbair Doors that were installed about 3 years ago in our warehouse at 5620 Ager Rd., W. Hyattsville, Md. They have held up well and have satisfactorily performed their function of keeping cold air out of the building while allowing easy passage of merchandise through the doorways. If we were to build a new warehouse, we would duplicate the Rubbair door installation.

Sincerely yours,

B. B. Bergunder, Jr.
Vice-President

Use Rubbair Doors to assure trouble free operation . . .

- Flexible Construction
- Rugged V-Cam Hinges
- Safety Cushion Nose
- Positive Air Seal
- Shatter-proof Windows
- Scuff Resistant Wear Panels

If you have an industrial door problem, drop us a line and let us help you solve it. Write for details and free illustrated catalog, today.

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MANUFACTURING CO., INC.
RUBBAIR DOOR DIVISION
57 Regent Street
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Dealerships available in protected territories

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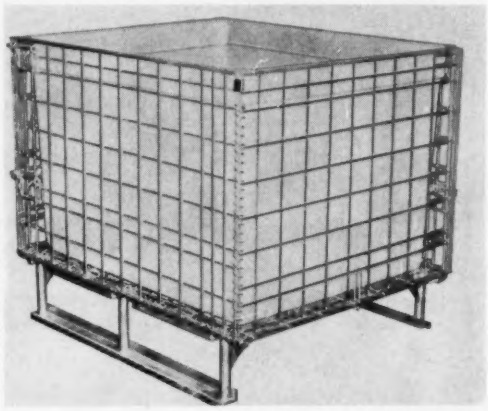
thinking in terms of custom design or short-run applications due to its relatively inexpensive tooling costs."

Spencer has licensed four companies to fabricate articles using the process: American Agile Corp., Bedford, Ohio; SinTrex Division, Amos-Thompson Corp., Edinburg, Ind.; Industrial Products Division, Rubbermaid, Inc., Wooster, Ohio; and Space Structures Inc., Chanhassen, Minn. Spencer supplies the powdered polyethylene, helps develop and refine the process.

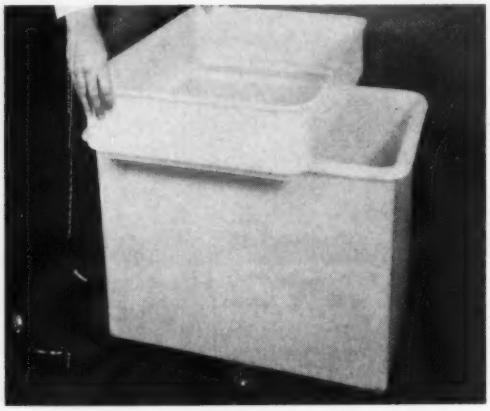
Right now, extensive development work on new products and uses is underway. (See our New Products section this issue for several items made by the Thermofusion process.)

The companies using the process are planning to aid the material handling engineer with engineering and technical assistance in custom applications, and in developing products. They can deliver custom-built containers fast because production time is so short. ♦



Union Steel Products Co.

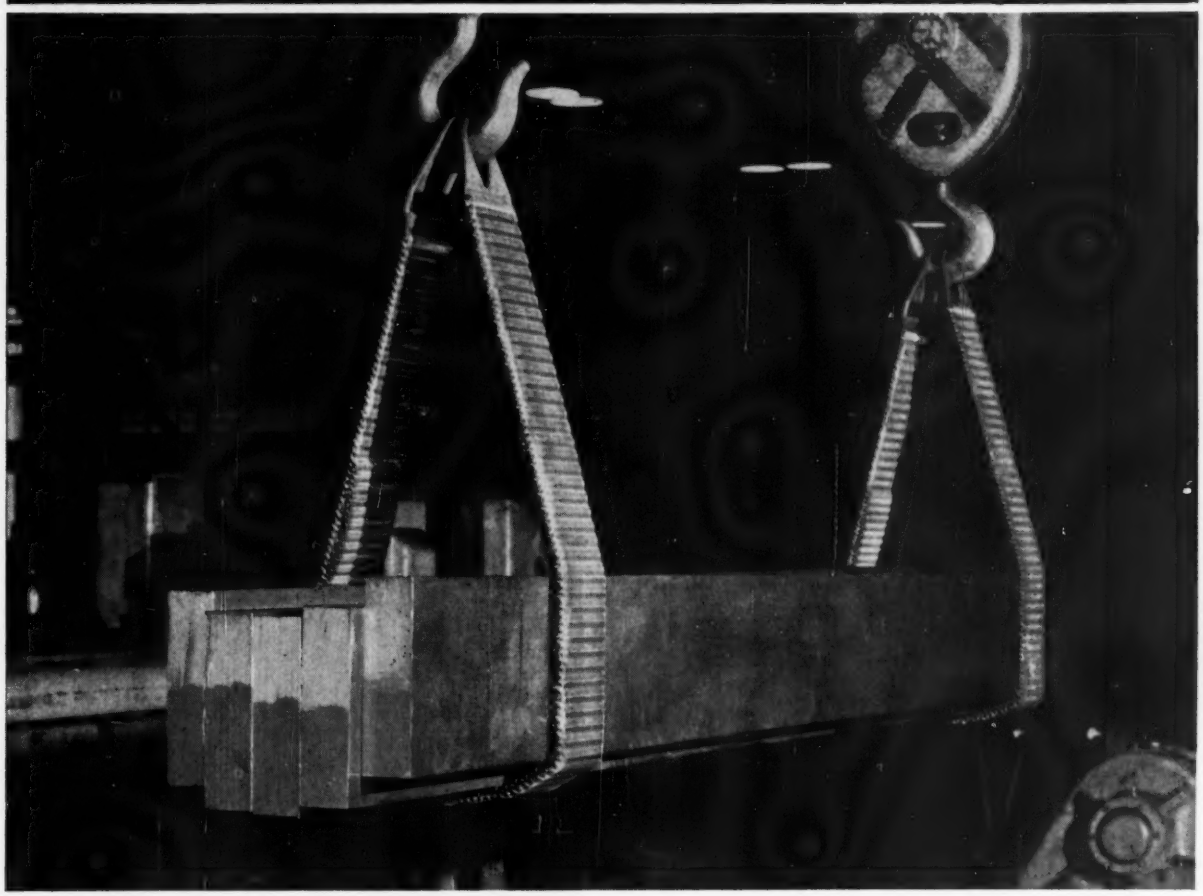
POLYETHYLENE liners made by the SinTrex Division of Amos-Thompson are used in this steel-mesh pallet. They are useful in food and chemical applications. Called a Sanitainer, they're marketed by the Union Steel Products Company.



Rubbermaid, Industrial Products Division

SIX-BUSHEL-capacity truck has a polyethylene body with molded-in metal casters. Can be equipped with cover for use with heaped loads or for additional carrying capacity as shown.

SAFETY



Only GRIPPER Metal Mesh SLINGS®

give you extra safety + 6 other benefits

Strength, Flexibility, Load Stability, Gentle Handling, Longer Life, Fast Easy Rigging

You want all the safety you can get in an overhead handling job . . . the kind of safety a Gripper Sling gives you. Because of its unusual construction, a Gripper Sling can't snap or tear suddenly and drop the load . . . it has no soft core to rot . . . can't kink or tangle. Spiral and cross rod construction also means that even if one wire breaks, the slack is absorbed by the rest of the sling. Moreover, a Gripper Sling has the flexibility, firm grip and broad bearing surface that prevents loads from shifting or slipping during movement.

Pretested and guaranteed Gripper Slings are available in standard lengths and widths to handle loads up to 100,000 lbs. For handling delicate loads or polished stock, ask about our PVC plastic or Neoprene covered Gripper Slings.

Mail the coupon today for full information or demonstration. Or, contact your nearest Gripper Sling Distributor.

The Cambridge Wire Cloth Co.
Dept. W., Cambridge 7, Md.

☐ Please send Gripper Sling catalog and my distributor's name.

☐ Please arrange a no-obligation demonstration.

NAME_____ TITLE_____

COMPANY_____

STREET_____

CITY_____ ZONE_____ STATE_____

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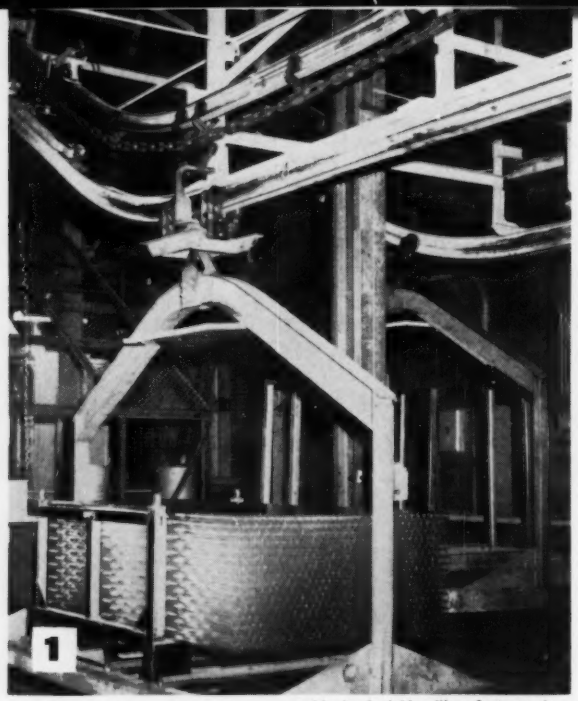
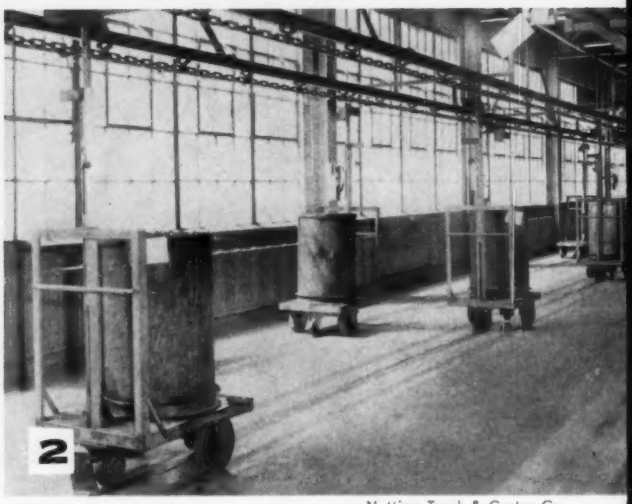
How they're handling...



Mechanical Handling Systems, Inc.



Nutting Truck & Caster Co.

1 SPECIAL RACKS at the Fairmont (W. Va.) Lamp Works of Westinghouse Electric Corporation do 5 main jobs. They're used as:

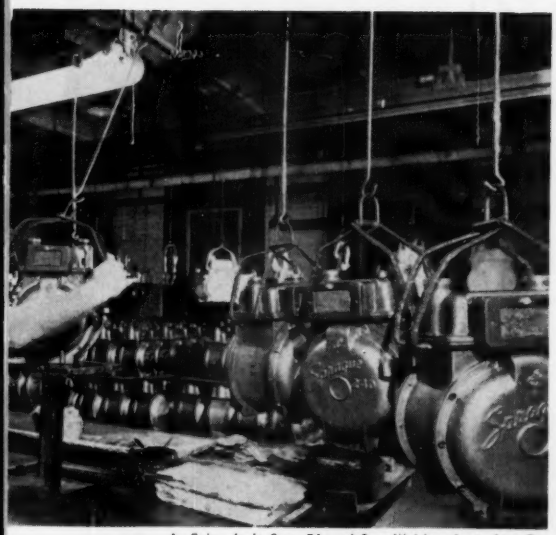
- Fork lift truck carriers
- Carriers for overhead conveyance
- Carriers over gravity roll conveyors.
- Work storage boxes in the manufacturing plant
- Storage racks in the warehouse.

Three sub-plants make up the complete plant. They make bulbs in the glass plant. These bulbs are stored in a warehouse. And there's a manufacturing plant where the bulbs are made into finished fluorescent light tubes. A power and free conveyor system connects all three areas.

The square-shaped bottom of the rack lets it move easily over gravity roll storage lines in the manufacturing plant. Fork trucks place the racks on the storage lines as they're removed from the conveyor line. The racks fit into a tilt section at the end of the storage line. This tilt holds the rack while it is gently tilted forward so operators can easily remove the raw bulbs as needed.

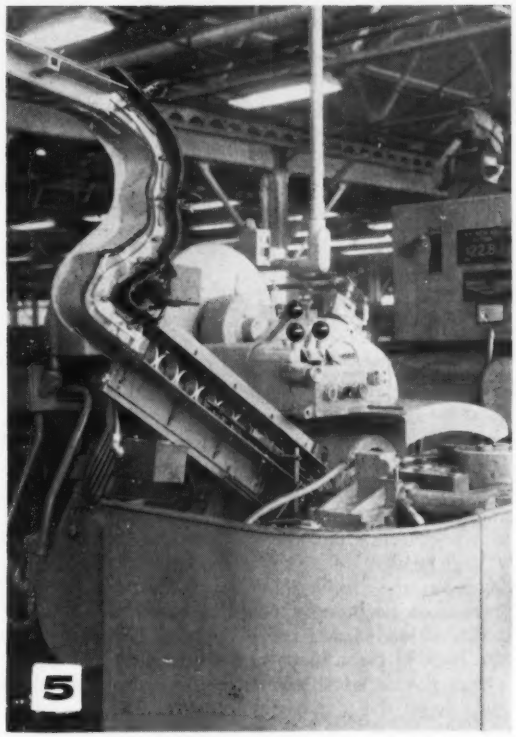
2 A TOW-LINE conveyor hauling bolts and forgings cuts manhour requirements $22,500 for a midwest steel producer. The conveyor runs along a line of 122 boltmaking machines and upsetters. Tow carts are spotted at the discharge side of each machine. As soon as the container on the cart is loaded, the machine operator attaches the cart to the conveyor. Containers hold 2,200 lb. each. The conveyor first delivers the cart to a weighing station. There, after weighing, the scale man hooks the cart to a second part of the conveyor system, which can take it to heat-treat, to further manufacturing operations, or to be packed for shipping or storage. Selector pins on the cart are preset to determine which of these destinations the cart will reach. By this means the system moves 248,000 lb. a day with the use of practically no manpower.

3 LIFTING A GAS METER from a work bench and attaching it to an overhead conveyor line was a production handling job that made tired workers for the Sprague Meter Co. Result: low efficiency and a potential safety hazard. Sprague turned to an ingenious lifting device to solve the problem. They installed a



A. Schrader's Son, Div. of Scovill Manufacturing Co.

Chainveyor Corp.



small platform in the surface of the workbench and connected it to an air cylinder underneath. Now the worker steps on a pedal, the platform lifts the meter to conveyor height, and all the worker has to do is make it secure. The platform retracts automatically when the worker removes his foot from the pedal.

4 A PUSHBUTTON CONTROLLED power and free conveyor system solved the problem of handling circuit breakers and storing them in-process for I.T.E. Circuit Breaker Co. The power system moves assembly carriers between work stations; the free, which runs parallel, is used for switching and storing.

At work stations, the partially assembled circuit breakers are placed on 30-inch carriers. The pushbutton control operator then directs the loaded carrier into any one of eight open gravity lines that flow through the assembly area. Re-entry of the assembly into the power system can be made by pushbutton at any time.

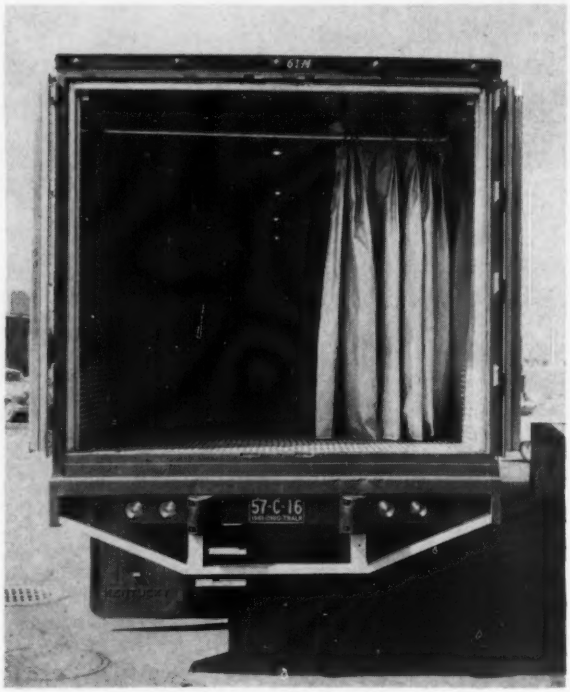
5 CONTROLLED MATERIAL flow is the key to the feeding of double cups between two machining operations at Timken Roller Bearing Co. A magnetic elevator takes the cups as they feed from an automatic screw machine and raise them to the top of an exit chute. This chute (photo) feeds a chuckmatic. Two electric eyes, one on the magnetic elevator and the other on the feed chute, regulate the flow.

Since the chuckmatic can complete cups at twice the rate of the first operation, it isn't necessary to keep it running constantly. The electric eyes permit a bank of 35 pieces to accumulate; they automatically stop the magnetic elevator if cups back up to a certain point. In this case, the cups are diverted into tote pans and later fed into the magazine feed chute of the chuckmatic when it resumes operation.

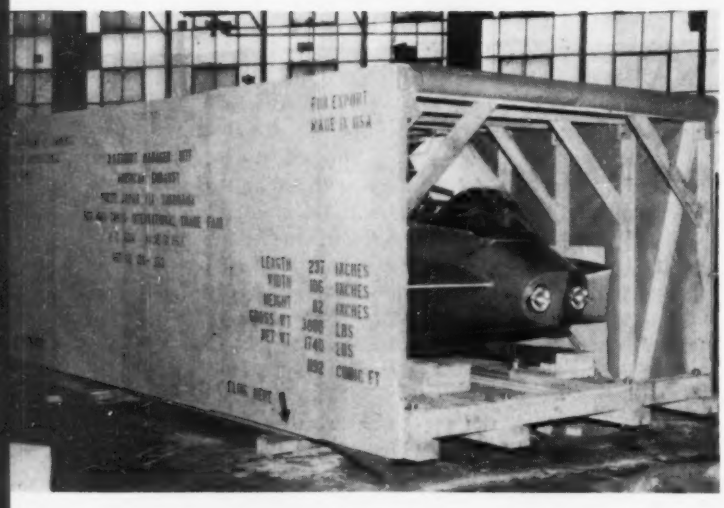
PACKAGING & SHIPPING IDEAS

Cargo curtain conserves cold

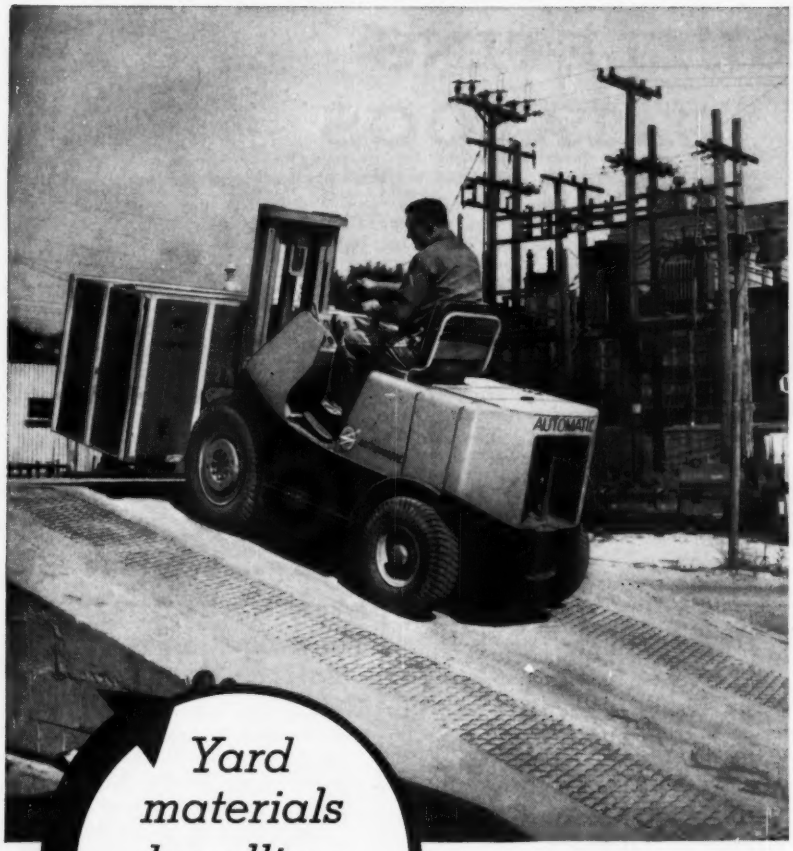
A SIMPLE DEVICE — a movable curtain — is doing a whale of a job protecting meat and frozen foods for Fisher Foods, a Cleveland food store chain. A painted aluminum vinyl curtain is stretched across the width of their refrigerated tractor-trailers. The curtain can be moved from side-to-side and from front-to-back. The trailers are insulated by a 4-inch layer of styrofoam on the walls and a 6-inch layer on the ceiling and floor. Temperature inside the trailer can be brought down to zero in an hour. When a trailer is loaded and ready to go, the curtain is placed at the back of the trailer. As deliveries are made, the driver places the curtain between the order he is delivering and the rest of the load. This conserves and concentrates the cold air on the undelivered goods.



How to package a flying machine



HOW DO YOU MAKE a rugged, reusable package to hold an automobile to be exhibited overseas in four different countries? This was the job given to Chicago's Greene Export Packaging Corp. by the U. S. Department of Commerce. U.S.D.C. wished to exhibit an Aeromobile 200-2 in Tokyo at the Fourth International Trade Fair. From Tokyo, it is to be exhibited in Italy, Yugoslavia and India. The Aeromobile is a car that travels on a cushion of air about a foot above the ground — or water. First, Greene constructed what amounts to a portable garage, or hanger, for the Aeromobile. This consisted of a crate with tracks on the bottom so that the Aeromobile could be moved in or out easily. The Aeromobile was shackled to the crate at each of the four corners to prevent back-and-forth movement while in transit. A moisture resistant wrapper was put on before boarding up the sides. One end of the crate was bolted, instead of nailed, so the car could be easily removed without dismantling the entire crate.



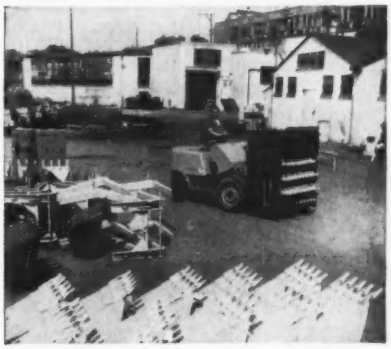
Yard materials handling your problem?

AUTOMATIC® gas-powered trucks cut fuel costs as much as 30%

Yard handling means long distances, semi-finished areas, ramps and all-weather operation. It can mean high fuel consumption, more maintenance. But it doesn't have to—not if you use the truck that's designed to cut fuel and maintenance costs. That's AUTOMATIC's pneumatic-tired Model GLFP, the gas-powered truck that saves up to 30% in fuel compared to similar trucks doing the same jobs. It saves on maintenance, too! Power steering is standard equipment. You get all this at the same price you would pay for less rugged equipment. Model GLFP is available in capacities of 3,000 thru 8,000 lbs. with pneumatic tires. Get all the facts. Mail coupon.

Precise inching control permits Model GLFP truck to accurately tier concrete block, bricks, lumber, and tile in minimum time.

Semi-finished area is no problem for the Model GLFP in this drum handling application. There's plenty of underclearance for outdoor work. Truck easily bridges the top of steep ramps.



Power steering as standard equipment makes the Model GLFP exceptionally maneuverable and easy to drive. Result: faster handling, lower costs.

AUTOMATIC

AUTOMATIC TRANSPORTATION COMPANY
Division of The Yale & Towne Manufacturing Company
141 West 87th Street, Dept. K1, Chicago 20, Ill.

FIRST IN IMAGINATION
FIRST WITH REALITY

SEND FOR DESCRIPTIVE LITERATURE

New bulletin "Facts and Factors about Gas-powered Lift Trucks" and "AUTOMATIC Industrial Trucks Selector Guide" free on request.

Name_____

Company_____

Street_____

City_____ Zone____ State_____

Circle 5 on Reader Service Card

BULLETINS CATALOGS FILMS

Automatic Silicon Chargers

New charger control circuit regulates d.c. output accurately in spite of a.c. input voltage variations of 10 percent plus or minus. Bulletins give specifications and charging characteristic curves for chargers that operate on 8 and 16 hour charging cycles. Bulletin 110 covers models for 6 and 9 cell batteries, Bulletin 109 is on chargers for 12, 15, 16, and 18 cells.

C & D Batteries

For Bulletin 110, circle **401** on Reader Service Card

For Bulletin 109, circle **402** on Reader Service Card

Belt Carriers

Full line of troughing conveyor carrier rolls and return rolls, described in Catalog 61-3-5. Includes new dual roll idler (2-roll carrier, rabbit ear type). Gives data on dimensions, capacities, and dimensional drawings.

Finco, Inc.

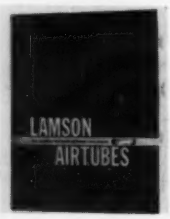
Circle **403** on Reader Service Card

What Hydraulic Lifts Do

"Case Studies in Modern Lift-portation" reports 59 case histories showing all uses of hydraulic lifts for material handling. Covers applications in 21 industries, for lifting, loading, positioning and feeding materials, and also ways to solve loading dock problems, bridge in-plant railroad spurs, connect split floor levels. Fully illustrated, 24 p. Includes description of types of hydraulic cylinders, instructions on how to specify and order.

Globe Hoist Co.

Circle **404** on Reader Service Card



Pneumatic Tube Communication

Faster movement of business papers is primary use of pneumatic tube systems described in "Lamson Airtubes," a 40-page catalog. Explains conventional, semi-automatic, and automatic systems. They carry your papers at speeds up to 40 ft. a second. Can also carry for small parts, samples, cash, etc.

Lamson Corporation

Circle **405** on Reader Service Card

Shuttle Piler

Twin scissors-lift tables mounted on track can be shuttled from side to side. One receives pile of sheets from processing machine or conveyor while other is being unloaded. Bulletin explains operation, shows how it increases working time of production equipment served by piler.

Clark-Aiken Co.

Circle **406** on Reader Service Card

Versatile Loaders

Booklet D106 emphasizes many kinds of jobs front-end loaders do. Shows which wheel- and track-type loaders fit particular jobs. Covers models with bucket size ranging from 1¼ cu. yd. to 2¾ cu. yd.

Caterpillar Tractor Co.

Circle **407** on Reader Service Card

"The Lady is Ready"

Folder tells how Shepard Niles cranes aided construction of the N.S. Savannah, world's first nuclear-powered merchant vessel. Action photos. Cranes used to build this Merchant Marine vessel were installed in 1939 in the Camden, N.J. yard of New York Shipbuilding Corp. They are still so modern in design and operation that they can handle nuclear and missile components.

Shepard Niles Crane & Hoist Corp.

Circle **408** on Reader Service Card

High Lift Fork Trucks

Fork trucks with high lifts, low mast-down profiles presented in 4-p. bulletin on Truck-man line. Gives specifications, dimensional data on 1½-, 2-, and 2½-ton models. Capacity chart shows actual capacities as load centers change from 15 in. to 42 in.

Knickerbocker Co.

Circle **409** on Reader Service Card

Standard Wire Partitions

Eight-page folder show how you assemble standard wire mesh partition panels to make partitions, enclosures, mesh walls. System is based on standard 8 ft. panel height, with design that gives 8 ft. clear opening at sliding doors. Any other desired height obtainable by use of incremental panels.

Wire and Iron Products, Inc.

Circle **410** on Reader Service Card

How Air Freight Cuts Material Handling

Raytheon got rid of all its warehouses, began shipping direct by air from factory storage to customer. Result: Net saving of $360,915 a year, and 3-day service to all customers. Renault changed from shipment by sea across the Atlantic, to Transatlantic air shipment, for all repair and replacement parts for the American market; Result: shipping and handling costs cut more than 50%, transport time reduced from 15 days to 1 day. These cases and others are shown in a film from Boeing explaining how these firms, and others such as National Twist Drill, Montgomery Ward, IBM, Polaroid, are making use of air freight. *"Air Distribution." 16mm, sound and color, 20 minutes. Obtain from Motion Picture Unit, Transport Div., Boeing Airplane Co., Renton, Washington.*

Pneumatic Conveyor Diverter

Air-actuated, precision diverting valve enables you to switch automatically from one pneumatic conveying line to another. Bulletin describes construction, features for handling powdered and granular materials, self-cleaning action and easy disassembly which make diverter appropriate for handling foods.

Circle **411** on Reader Service Card

Flo-Tronics Inc.

Continued on page 73

READER SERVICE CARD

Material Handling Engineering

Card Invalid Without Company Name

JULY, 1961 — Do not use after Oct. 15, 1961

NAME _____ TITLE _____

COMPANY _____ KIND OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

ADVERTISERS

1	16	31	46	61	76	91	106	121	136	151	166	181	196	211
2	17	32	47	62	77	92	107	122	137	152	167	182	197	212
3	18	33	48	63	78	93	108	123	138	153	168	183	198	213
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

COST CUTTING IDEAS

250 261
251 262
252 263
253 264
254 265
255 266
256 267
257 268
258 269
259 270
260 271

301	313	325	337	349	361	401	413	425	437	449	461
302	314	326	338	350	362	402	414	426	438	450	462
303	315	327	339	351	363	403	415	427	439	451	463
304	316	328	340	352	364	404	416	428	440	452	464
305	317	329	341	353	365	405	417	429	441	453	465
306	318	330	342	354	366	406	418	430	442	454	466
307	319	331	343	355	367	407	419	431	443	455	467
308	320	332	344	356	368	408	420	432	444	456	468
309	321	333	345	357	369	409	421	433	445	457	469
310	322	334	346	358	370	410	422	434	446	458	470
311	323	335	347	359	371	411	423	435	447	459	471
312	324	336	348	360	372	412	424	436	448	460	472

Do you wish to continue to receive MATERIAL HANDLING ENGINEERING each month ☐ Yes ☐ No

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JULY, 1961 — Do not use after Oct. 15, 1961

NAME _____ TITLE _____

COMPANY _____ KIND OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

ADVERTISERS

1	16	31	46	61	76	91	106	121	136	151	166	181	196	211
2	17	32	47	62	77	92	107	122	137	152	167	182	197	212
3	18	33	48	63	78	93	108	123	138	153	168	183	198	213
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

COST CUTTING IDEAS

250 261
251 262
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308	320	332	344	356	368	408	420	432	444	456	468
309	321	333	345	357	369	409	421	433	445	457	469
310	322	334	346	358	370	410	422	434	446	458	470
311	323	335	347	359	371	411	423	435	447	459	471
312	324	336	348	360	372	412	424	436	448	460	472

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MHE IS NOW ADDRESSED LIKE THIS:

IT SHOULD BE CHANGED TO THIS:

MAJOR PRODUCTS MANUFACTURED OR TYPE OF BUSINESS AT THIS ADDRESS _____

MY JOB TITLE _____

SIGNATURE _____

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CLEVELAND, OHIO

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812 Huron Road
Cleveland 15, Ohio

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FOR YOUR CONVENIENCE . . .

to receive further information about products described in this issue, circle the indicated number on the card.

BULLETINS CATALOGS FILMS

Wire Tote Baskets

Tote baskets made of wire, engineered and custom-made for the particular part, described in 8-p. folder. Designing basket for the part saves space, protects product, increases efficiency. Shows dozens of examples, explains features of each.

Mid-West Wire Products Co. Inc.

Circle **412** on Reader Service Card

Buy or Lease?

"Which is best for you?", a folder, compares outright purchase of industrial trucks with lease plans. Explains tax effects. Presents 5 alternatives to buying: accelerated lease, level lease, true lease, monthly rental, time sales. Includes charts of amounts due monthly under lease plans.

Automatic Transportation Co.

Circle **413** on Reader Service Card

How To Automate

"Automation, Materials Handling . . . And You!" tells why, when, and how to automate. Case histories illustrate applications of automation to sorting, counting, positioning, inspecting, and weighing.

Atronic Products Inc.

Circle **414** on Reader Service Card

Handles Paper Automatically

"Thinking" conveyors carry 2,000-lb. newsprint rolls from street level unloading to storage, from stoarge to press room, with automatic sequencing and control of loads. Bulletin 6839 shows 3 installations, in photo and with diagrams.

Gifford Wood Co.

Circle **415** on Reader Service Card

Charger Manufacture Shown

Folder shows 25 steps in manufacture of Hobart Battery Chargers, emphasizes precision built into these motor-generator units.

Motor Generator Corp.

Circle **416** on Reader Service Card

People Handling

If you handle people like material, speed up the in-plant movement of your executives and skilled workers, you can convert useless walking-time into valuable work-time, advises "New Concept," a booklet from Electri-Car. Manufacturer can furnish 3-wheeled electric personnel carriers for carrying out this new concept, and which also haul tools, material.

Electri-Car Div., Victor Adding Machine Corp.

Circle **417** on Reader Service Card

Helps Select Package Imprinter

Selection chart shows which of 6 devices for coding, marking, or imprinting packages should be used for each of 37 varieties of package. Covers most package types. Pictures and descriptions of imprinting devices explain how they fit with operations of conveying, filling, labeling, etc.

Gottscho

Circle **418** on Reader Service Card

Drive-Through Pallet Racks

Bulletin 108 describes adjustable drive-in or drive-through pallet racks assembled from standard components. Go together without use of bolts or tools.

Bernard Gloekler North East Co.

Circle **419** on Reader Service Card

Portable Pneumatic Conveyor

Mobile pneumatic conveyor unit designed for handling grain, seeds, beans, etc., described in Bulletin A-20. Powered by gas engine or electric motor. Three models, with capacities of 10, 20, or 45 tons per hour (based on wheat). For loading and unloading railroad cars, ships, trucks.

Fuller Co.

Circle **420** on Reader Service Card

High-Speed Package Casing

Thirteen automatic and semi-automatic models of Sure-Way package caser described in 8-p. booklet. Loads top-, side-, or end-opening shipping cases, at rates up to 700 packages cased per minute.

Food Machinery and Chemical Corp.

Circle **421** on Reader Service Card

Folder of Industrial Truck Data

Handy "Workhorse" portfolio brings bulletins, specification sheets on units in Erickson line of industrial trucks. Includes fork lift trucks from 1 to 10 ton capacity, unusual articulated burden carriers (they're hinged in the middle, turn on short radius), powered platform trucks, and concrete pipe carrier.

Erickson Power Lift Trucks, Inc.

Circle **422** on Reader Service Card

Counting Instruments

To make it easy for users to choose and order Durant counters, Catalog 200 presents complete descriptive material, specifications, illustrations of each model. Accompanying price card follows same arrangement.

Durant Manufacturing Co.

Circle **423** on Reader Service Card

Flexible Couplings

New models, new data, in a new catalog of Falk Steelflex couplings. Principle of Steelflex is to link the two members of the coupling with an interlacing steel strip. Catalog gives specifications, engineering data on couplings for input h.p. from ¾ to 9000, speeds from 7.5 to 11,000 rpm.

Falk Corp.

Circle **424** on Reader Service Card

Cargo Control Systems

Complete systems for holding cargoes in place in trucks, railroad cars. Employ belt rails with bars, beams, straps. For installation by vehicle user or at factory where rolling-stock is built. Also tie-downs employing straps, chains, cables, for tensions up to 30 tons. Catalog 700 gives complete engineering data, tells how to order.

Aeroquip Corp.

Circle **425** on Reader Service Card

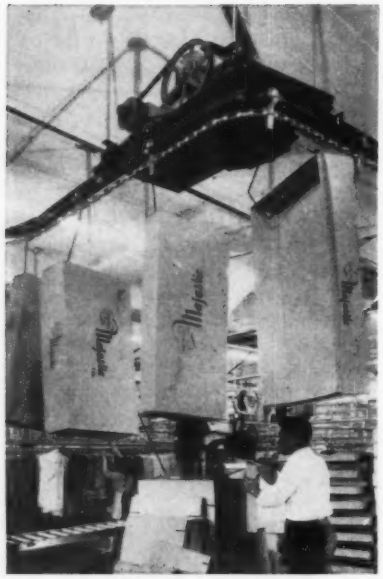
Battery Data

Twenty-page booklet from Gould furnishes data on discharge characteristics, dimensions, weights of 7 types of motive power storage cells. Selection chart provides information on battery dimensions, capacity in ampere hours, weights, etc., for 16 models furnishing 12, 18, and 24 v. output. Also data on charger unit, connectors.

Gould-National Batteries, Inc.

Circle **426** on Reader Service Card

Continued on page 74



AERIAL CARTON STORAGE GIVES PROFITS A LIFT

Any manufacturing or warehouse operation that uses multiple packing stations or many kinds and sizes of cartons can profit from handling empty cartons on Rapistan overhead trolley conveyor. Present users are enjoying these benefits:

1. Automatic delivery of assembled cartons to point of use reduces handling labor.
2. Less floor space required for each packing station.
3. Mobile storage of made-up cartons off the floor.
4. Central stitching or stapling area for carton set-up close to knocked-down carton storage.
5. Removal of containers from unload areas.
6. Recirculation of tote boxes or other containers.

With a Rapistan system, one manufacturer gained a 10′ x 15′ office and space for 9,000 inventory items where empty cartons used to be stored—and reduced carton handling costs at the same time.

For other examples of money-saving overhead systems for handling empty containers, write Rapistan-Keystone, Inc., 507 Rapistan Bldg., Grand Rapids 2, Mich. Ask for report No. RK-13.

Rapistan®

OVERHEAD CONVEYORS

Circle **85** on Reader Service Card

BULLETINS CATALOGS FILMS

Monorail Equipment Detailed

An 88-page booklet is packed with information on the use of overhead monorail items. It's broken down into sections on standard line equipment, drive tractor equipment, hoist data, wide flange equipment, and engineering data.

Twin City Monorail Co.

Circle **427** on Reader Service Card

Electric Induction Equipment

Bulletin GB-5 describes Dynamatic equipment and the principles on which it operates. Covers eddy-current couplings, drives, brakes, dynamometers. Magnetic-friction clutches and brakes.

Dynamatic Div., Eaton Mfg. Co.

Circle **428** on Reader Service Card

Adjustable Speed Drives

Bulletin 2900 covers the company line. Includes Ajusto-Spede, Allispede, Select-A-Spede, and Magnetic drives. Each is explained, with sketches and pictures.

The Louis Allis Co.

Circle **429** on Reader Service Card

"How To Use And Abuse Wire Rope"

Title of a 92-page pocket-size book. Adapted from the company's Wire Rope Handbook G-16. Contains useful information helpful in selecting wire rope. Explains wire rope construction.

Macwhyte Wire Rope Co.

Circle **430** on Reader Service Card

Traveling Cranes & Hoists

To spice up a catalog of cranes and hoists, Detroit Hoist shows pictures of its equipment lifting a stage of chorus girls. Other pictures show details of double- and single-girder traveling cranes, air and electric hoists.

Detroit Hoist and Machine Co.

Circle **431** on Raeder Service Card

Pneumatic Handling Systems

For economical conveying of bulk cement, bulk chemicals, dry foodstuffs, and other finely divided or pelletized dry materials. Folder describes the Halliburton pneumatic systems. List of 8 advantages. Standard units are designed to convey materials up to 40 cu. ft. per minute at distances of 1,400 feet with a 100-foot rise.

Special Products Div., Halliburton Co.

Circle **432** on Reader Service Card

Hydraulic Control Equipment

Here's the story of Husco hydraulic valves, cylinders, pumps, and other equipment. You see how every component, sub-assembly, and finished assembly must pass repeated tests and inspections.

Hydraulic Unit Specialties Co.

Circle **433** on Reader Service Card

Heavy Duty Conveyors

For handling sand, rock, gravel and other bulk materials. Catalog shows standardized portable and stationary conveyor lines. Photo section brings out features in operation shots. Specifications on each series. Engineering data includes formulas and tables.

Heavy Equipment Div., Chantland Mfg. Co.

Circle **434** on Reader Service Card

Heavy-duty Lifting Magnets

Bulletin 3022 covers Stearns circular lifting magnets. Company says whatever your need, they have a magnet with the construction features and required lifting capacity to do the job.

Stearns Magnetic Products

Circle **435** on Reader Service Card

Self-Centering Rolls

Thirty-page booklet on "Theory and Application of Lorig-Aligner Self-Centering Rolls." Generally the information is based on steel strip-handling operations. Gives an outline of the problems encountered in tracking various types of materials in medium and high-speed processing lines.

United States Steel Corp.

Circle **436** on Reader Service Card

Floor-to-floor Conveyors

Custom made to suit any conveying need. All steel construction, chain and sprocket design. Literature pictures various models available, lists features, tells where recent installations have been made.

Wehle Conveyor Co.

Circle **437** on Reader Service Card

Continued on page 76

RAPISTAN Ideas HANDLING

STEP-BY-STEP ANALYSIS

can cut your handling problems down to size

As with most engineering problems, those involving materials handling often seem less formidable when they are dissected and examined as smaller units of the overall flow system.

Materials handling engineers refer to this principle as "disassociation of inter-related operations"—and, for all its imposing sound, Rapistan sales engineers apply it effectively to analyze a handling problem and arrive at the most practical and economical solution.

When analyzed in this light, any flow pattern can be reduced to a series of identifiable units of movement, interspersed with related periods of storage. To effect the changes from "go" to "stop" and back to "go" again, a number of mechanical or manual transfers must be provided for. Then, all these inter-related steps must be controlled—unified into a coordinated flow system.

In this plant, live storage Flow Rack at the receiving area holds a reserve supply of many materials ultimately destined for storage at the point of use, to accumulate a full payload for fork truck deliveries to work stations. Notice the unique side-loading device on the lift truck, designed for efficient loading and unloading of hatches in the Flow Rack. Live storage also simplifies inspection, paper work, etc. at receiving department.

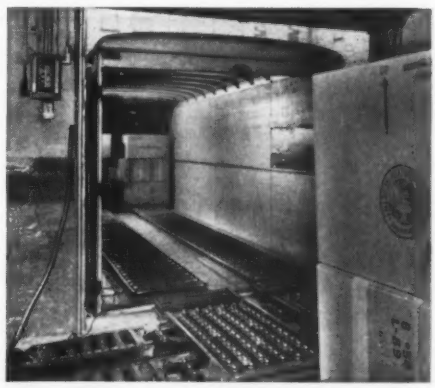
When properly "disassociated", operations that may have been considered as units frequently are found to consist of a number of steps. For example, receiving goods into storage may in reality involve 6 or 8 individual units of movement, transfer and storage.

By treating each of these units as an independently solvable problem, within the framework of the overall flow system, Rapistan handling engineers can recommend the method and equipment that will best mechanize each operation, and best coordinate with preceding and subsequent operations.

This large furniture plant has "disassociated" its receiving operations from production operations. In-coming materials are unloaded directly to platform trucks or pallets by truck drivers. Inspection and receiving forms are completed by company personnel when most convenient.

In analyzing thousands of handling problems, Rapistan engineers have found that the vast majority are closely linked to the storage of goods for long or short periods of time. Improvements in accumulation methods, therefore, promise important economies in equipment, time and manpower for materials handling. This is the area of industrial "warehousing" in which Rapistan engineers have amassed a wealth of practical experience and knowledge.

If you'd like to see some practical suggestions to solve your handling problems based on these principles, call your Rapistan sales engineer. Or, write directly to The RAPIDS-STANDARD CO., Inc., 506 Rapistan Bldg., Grand Rapids 2, Michigan, for our "Handbook of Materials-Handling Ideas".



"Disassociation" works in truck loading as well as unloading. Pallet-loads of shipping cases are accumulated on floor-mounted gravity roller conveyor Company trailers are equipped with matching roller conveyor lines, can be completely loaded in less than a minute, in a single operation.

Rapistan®

CONVEYING EQUIPMENT

Circle 84 on Reader Service Card

Circle **12** on Reader Service Card

Avco Frigidaire John Sexton
NuTone I.B.M. Reynolds Metals
Timken Newberry Formica
Goodyear Int'l Harvester Delco
U. S. Plywood Admiral R C A
Du Pont Ford Westinghouse
General Electric National Biscuit P & G

CUSTOMERS OF BUSCHMAN
Use Conveyors as Varied as their Products

Buschman gravity and powered conveyors are carrying the load in every branch of industry. Wheels, rollers, belts, overhead and table-cable trolleys are coordinated in experience-engineered systems that expedite handling and save you money. With Buschman specifications and their standard stocked units, you can make the actual installation. Uniform Quick-Eez couplings permit fast assembly of portable units. Bolted construction facilitates moving fixed systems.

Tell us your handling problems and let us suggest solution with low-cost, durable, efficient Buschman conveyors. The E. W. Buschman Co., 4450 Clifton Ave., Cincinnati 32, Ohio.

Buschman CONVEYORS

Complete Conveyor Systems for all Types of Industries—Engineered, Manufactured, Installed
Representatives in Principal Cities; See Yellow Pages

369

BULLETINS CATALOGS FILMS

How to Plan Shelf Storage

"12 Losses Penco Planning Can Control" tells you about benefits you get by carefully planning your installation of racks, shelving, bins, lockers, etc.

Penco Div. Alan Wood Steel Co.

Circle **438** on Reader Service Card

Storage Racks

You can set up racks to suit your needs, using standard parts. Five basic parts assemble without tools, no bolts. Catalog shows how. For conventional, drive-in, and drive-through racks. Also includes tiering and coil stock racks.

American Metal Products Co.

Circle **439** on Reader Service Card

New Dockboards

Two bulletins show advantages of adjustable-lip mechanical dockboards. Bulletin SB 810 shows how adjustable lip makes adjustment to truck height easy. Bulletin SB 811 explains why 7 ft. wide dockboard enables you to get full benefit from 93-in. wide highway carriers.

Kelley Co. Inc.

Circle **440** on Reader Service Card

Carts, Hand Trucks, Hoppers

Custom-designed equipment for material handling described in 8-p. catalog. Builder designs trucks, hoppers

NOW — a truly LOW-COST CARRIER with deep-troughing high-capacity performance

Finco DUAL-ROLL IDLERS

A budget-priced component for low-cost conveying: Finco DUAL ROLL (rabbit ear) IDLERS are the result of sound engineering, designed by men who know material handling. Never before such superb performance with lightweight material, such deep-troughing, high-capacity at such low-cost. Write for literature on the Finco "rabbit ear" idlers — built to handle 8" to 24" belt widths.

Finco inc. AURORA, ILLINOIS U.S.A.

Circle **46** on Reader Service Card

America's Finest Industrial Trucks and Trailers

MOST COMPLETE LINE
STANDARD and SPECIAL DESIGNS
Industrial Trailers, Platform Trucks, Conveyor Trucks
CAPACITIES, SIZES, AND SUPERSTRUCTURES AS REQUIRED
WRITE FOR INFORMATION
JAKES FOUNDRY COMPANY
Established 1891
2800 Charlotte Avenue Nashville 9, Tennessee

Circle **59** on Reader Service Card

to your specifications. Examples: foundry core trucks with spring-loaded tip-up shelves; side dump scrap truck; end dump hopper caster-mounted or made so lift truck can pick it up from any side; trucks for towline conveyors. Also offers a line of standard platform trucks.

Alfab Co. Inc.

Circle **441** on Reader Service Card

Hydraulic Rams For Material Handling

Chief uses of hydraulic rams to handle materials reviewed in 35 mm. sound film strip. "How to Harness a Ram" covers heavy lifting, loading dock uses, bridging in-plant R.R. spurs, solving the problem of split floor levels, and machine feeding. Shows pictures of all applications, including standard and special specification installations. Accompanied by illustrated folder summarizing contents of film and sound record. You need a 35 mm. film-strip projector with 33 r.p.m. player to use this. Obtainable from GLOBE HOIST COMPANY, East Mermaid Lane at Queen St., Philadelphia 18, Pennsylvania.

Steel Belt Conveyors

Hinged steel belts convey machining chips, castings, forgings, stampings, cullet, etc. Bulletin MF-100A describes correct uses for 5 types of hinged steel belting, catalogs standard conveyor supporting sections (straight, convex and concave curves, take-ups, drives, etc.).

May-Fran Mfg. Co.

Circle **442** on Reader Service Card

All-Purpose Conveyor

One basic belt conveyor design can be modified more than 20 ways to suit different needs. Changes make it portable, an elevator, a troughing conveyor, etc. Section lengths 4 ft. to 40 ft. Belt widths 8 in. to 24 in. Furnished with gasoline or electric drive. Weights, dimensions, drawings of 22 models in Bulletin 103.

New London Engineering Co.

Circle **443** on Reader Service Card

Conveyors, Elevators, Carts

Catalog presents makers' full line of general purpose and foundry material-handling equipment. Includes bucket elevators, hoppers, carts, conveyors. Unusual item is conveyor consisting of rails, in floor or mounted on stands, on which ride roller-supported pallets, carts, or foundry bottom boards. Rollers are flanged.

Nomad Equipment Corp.

Circle **444** on Reader Service Card

How Radios Help

Six-page folder "How 2-Way Radio Increases Materials Handling Efficiency" shows equipment you can use. Offers to help you survey your operation to find out what radios can do for you.

Motorola

Circle **445** on Reader Service Card

Container Size Nomagram

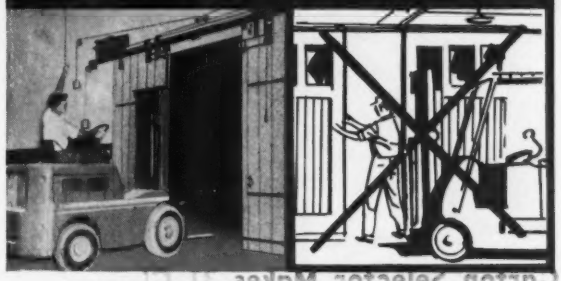
Nomogram in current "Sparks from Stone" helps you choose corrugated container dimensions that make container most economical to produce.

Stone Container Corp.

Circle **446** on Reader Service Card

Circle **87** on Reader Service Card

Waste motion costs time and money . . . speed up production traffic with



R-W ELECTRIC OPERATORS

FOR INDUSTRIAL DOORS AND GATES

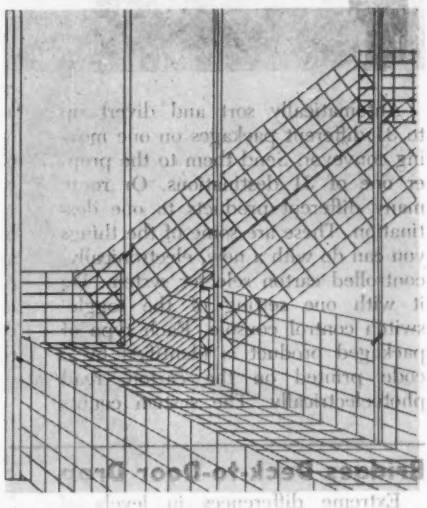
R-W offers a complete line of heavy-duty, top-quality Electric Operators designed to meet the rugged demands of industrial use. R-W Electric Operators will help speed up production traffic, smooth the traffic flow, and eliminate heat loss in winter and conditioned air loss in summer. R-W Electric Operators automatically open plant doors as traffic approaches and then close the doors safely and smoothly . . . eliminates door slamming and rough handling. Whether it swings, slides, raises or folds, R-W can open it automatically.

Write for your free copy of Catalog No. 200.

RICHARDS-WILCOX MFG. CO.

420 W. THIRD ST. • AURORA, ILL. • Branches in all Principal Cities

Your Own Employees can easily install these conveyor guards



WIRE-SHIELD

Ready-to-install Conveyor Guards

Installation of WIRE-SHIELDS is fast, easy and inexpensive. Unskilled labor can install them without special tools. Pre-assembled 8 foot sections in choice of widths and heights are helixed together, forming a sturdy, lightweight protective channel for conveyors. Used on slopes, corners and straight runs. WIRE-SHIELDS are reusable and fold for storing. Shipped with non-corrosive aluminum finish, including pre-cut helixes and hanger clips.

Write for FREE Literature

SPRINGPORT STEEL Products Co.

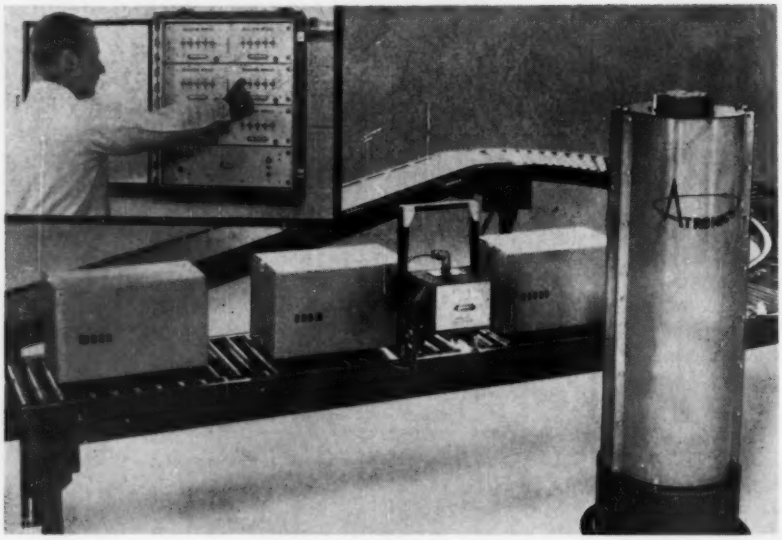
SPRINGPORT • MICHIGAN

MEMBER mhi

Circle **92** on Reader Service Card

mhe PRODUCT NEWS

Carton Selector Makes 31 Choices



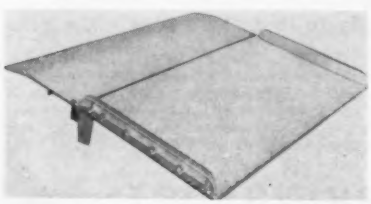
Automatically sort and divert up to 31 different packages on one moving conveyor. Send them to the proper one of 31 destinations. Or route many different products to one destination. These are some of the things you can do with a new, electronically-controlled carton selector system. Do it with one setting of the toggle-switch control console. Each type of packaged product is identified by a code printed on the carton, read photoelectrically. The system counts and totals passing cartons, runs at conveyor speeds up to 200 ft./min. Called Model 415, it can also be used with a proportional speed memory system where the output signal is held by the memory until the package arrives at its selected divert point. Photo shows coded cartons identified by reader just before being diverted. Large cylinder at right is the memory unit.

Atronic Products Inc.

Circle **301** on Reader Service Card

Bridges Deck-to-Door Drop

Extreme differences in levels of loading dock, and of the truck or rail-



car floor overcome by ramp hinged to aluminum dockboard. Comes in 48 sizes. Load capacities range from 5,000 lb. to 9,000 lb. Pull pin and separate ramp from dockboard. Quickly adjusted or moved by one man. Can be supplied with fork lift brackets, adjustable holding bars, abrasive non-skid surface.

F. H. Langsenkamp Co.

Circle **302** on Reader Service Card

More Flexible Pusher-Dozer

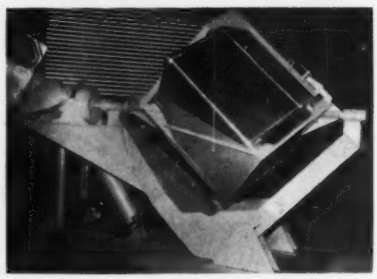
Model D-500 pusher-dozer (see photo, News Roundup, page 10) features full hydraulic-articulated steering. Turning radius of 25 ft. is less than the overall length. A 700 h.p. turbo-charged diesel engine powers the D-500 Paydozer. But they reduce the power to 600 h.p. at 2,100 rpm for longer life and less maintenance. Transmission requires no stopping for range shifts, is full-reversing, constant-mesh, with speeds up to 15 mph forward and reverse. Hydraulic system: closed and pressure-controlled. Blade is 160 inches wide, extends 10 inches beyond each side of the wheel path. Six-way control allows lifting and lowering, side-to-side tilt, forward and backward pitch. Maintenance areas are specially accessible. Dry ballast material in all tires (standard: 33.5 x 33-26 PR) gives stability and smooth ride, lower center of gravity.

The Frank G. Hough Co.

Circle **303** on Reader Service Card

Fast Tumbling and Blending

The Tote Bin, used for storage, shipping, and as a discharge container, has now become a process vessel as well. Just developed is the Tote Tumbler, a device which holds a Tote Bin and rotates it by its diagonal corners, makes a close blend

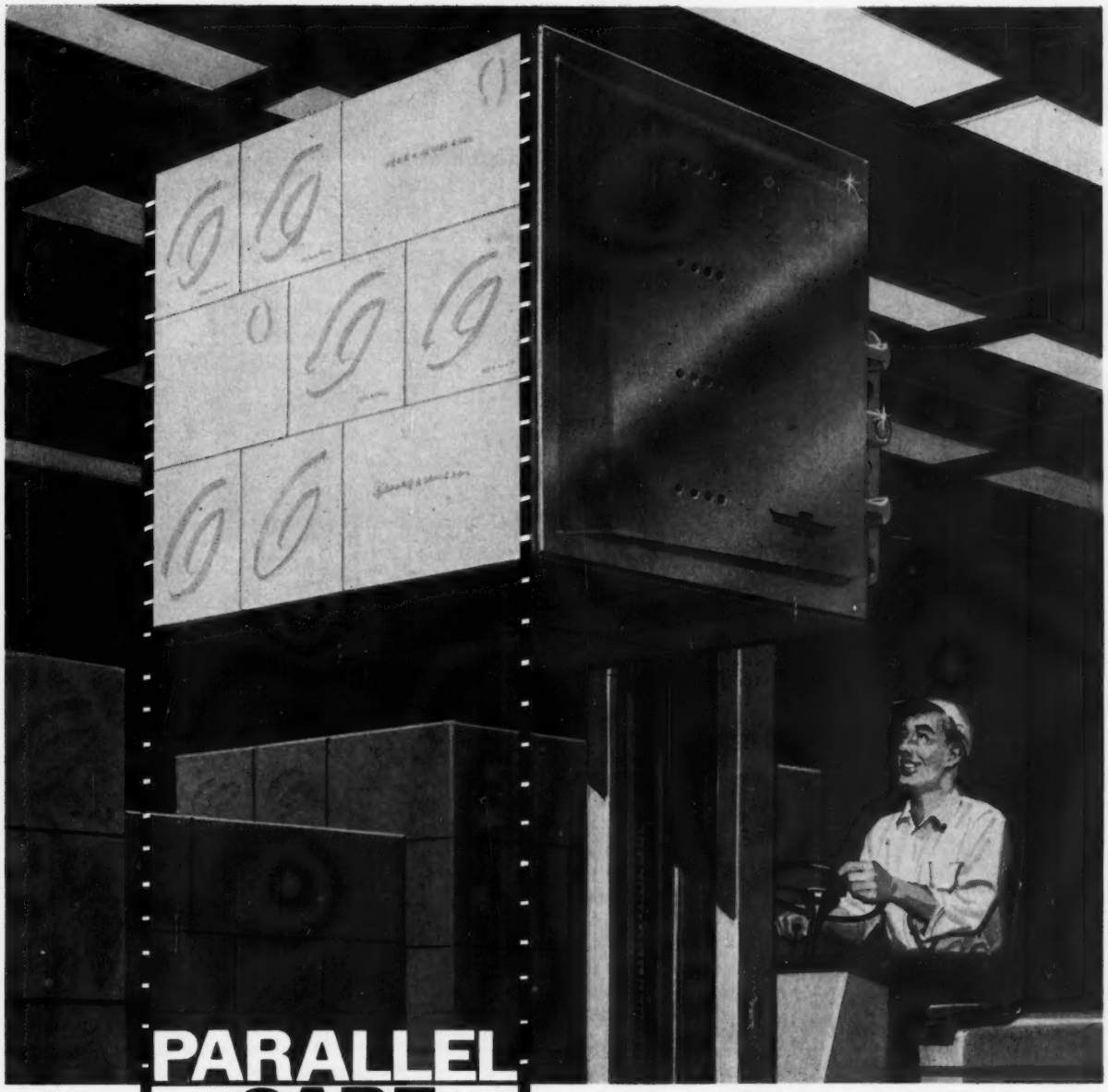


in about 5 minutes. You can place the Tote Bin on an automatic scale, feed it with different materials from screw-type Tote Tilts or a conveying system. The contents can then be tumbled and quickly taken to use point. This elminates the need for separate weigh hoppers, blenders, and conveyors.

Tote System, Inc.

Circle **304** on Reader Service Card

Continued on page 80



PARALLEL CARE

gives the new Cascade Carton Clamp a built-in advantage!

It's the greatest thing that's happened to cartons since palletless handling. An entirely new kind of carton clamp with *parallel* arm closing. Front to back. Top to bottom.

¦Parallel-Care¦ design equalizes pressure instantly and uniformly over entire clamping area. Handles fragile cartons *with care* and fast!

Other clamps run the risk of carton damage by using your load as a bearing surface to bring arms into alignment. Not Cascade! New built-in cantilever design keeps clamp contact surfaces parallel. Try it up front on your lift truck. Cascade attachments are sold through all lift truck manufacturers and dealers. **Write for further information.** The business end of a lift truck is our business.

cascade

Cascade Exclusive
PARALLEL CARE
For Cartons

CASCADE MANUFACTURING COMPANY
Sales and General Offices: P.O. Box 7587, Portland 20, Oregon • Plants: Portland, Oregon; Springfield, Ohio; Amsterdam, The Netherlands

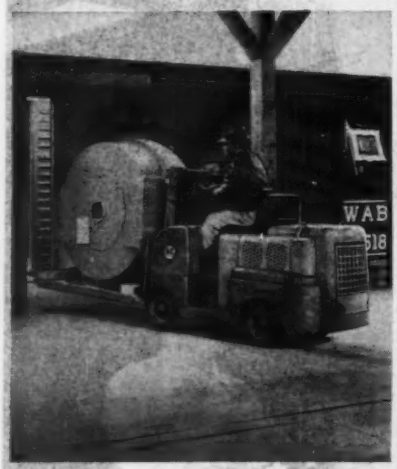
Circle **30** on Reader Service Card

THE WABASH RAILROAD DISCOVERS...

There's a Dollar-Saving Difference

IN ALLIS-CHALMERS

LIFT TRUCKS



17,500 Hours Without Engine Overhaul

Time and hard work is proving the difference in lift trucks at the Wabash Railroad LCL freight house in East St. Louis, Ill. The oldest of three Allis-Chalmers lift trucks has run more than 17,500 hours, the next oldest, 13,000 hours, and none has required an engine overhaul.

But in addition to reliability, "It has terrific drawbar pull," according to the station manager, "and that's mighty important here." The 4,000-lb FT-40 is used to skid crated machinery weighing up to 20,000 lb.

Have your dealer show you how the pluses these trucks offer can mean a big dollar-saving difference on your job. Allis-Chalmers, Milwaukee 1, Wisconsin. BH-166

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

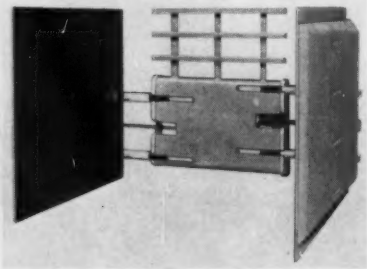
POWER FOR A GROWING WORLD

Circle 2 on Reader Service Card

PRODUCT NEWS

Carton Clamp Attachment

Special protection for handling fragile cartons is a feature of com-



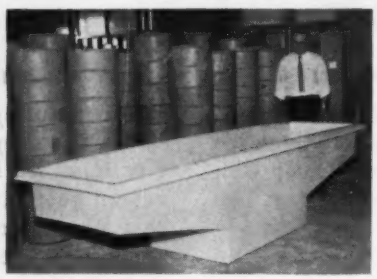
pany's new design carton clamps. Carton arms for the lift truck clamp are of reverse-cantilever design. Clamping force is initially applied to the unitized load by the forward edge of the arm. The forces then transfer through an equalizer plate. Contact surfaces remain parallel at all times, eliminate need for toe-in or camber. The clamping force is instantly and uniformly transferred over the entire clamping surface of load the instant you engage it. Design features include thin, tapered arms; built-in side shifting, thin profile for less lost load center; and interchangeable contact surfaces. Contact pads come in 14 standard lengths to meet varying load requirements.

Cascade Mfg. Co.

Circle **305** on Reader Service Card

Large Plastic Tanks

Cylindrical tanks up to five feet in diameter, and rectangular tanks, over 10 feet in length, are under



production by Thermofusion, a special method of fabricating polyethylene. This large rectangular tank with a funnel-like design was made to order. The tanks can be obtained on short notice. Units are manufactured without pressure, are stress-free, minimizing any tendency to warp.

Space Structures, Inc.

Circle **306** on Reader Service Card

Continued on page 82

THIS IS WHY

Chromcraft prefers the

ALLIS-CHALMERS

FT-20

More Power at the Drive Wheels

The FT-20 is the most powerful truck in its class. The extra power pays off every day on the steep ramp at Chromcraft Corporation in St. Louis.

Better Stability

Sometimes it is necessary to carry a load high to clear machines and materials. Balance and low center of gravity make the FT-20 first choice for this work.

Much Easier to Maneuver

The loading dock is narrow and busy at Chromcraft. Lift trucks must also work inside boxcars. The FT-20 can scoot and squirm through areas where smaller, less powerful, less maneuverable trucks can't follow.

Ask your Allis-Chalmers dealer to show you further proof that there's a Dollar-Saving Difference in Allis-Chalmers lift trucks. Allis-Chalmers, Milwaukee 1, Wisconsin. BH-165

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

POWER FOR A GROWING WORLD

Circle 6 on Reader Service Card

UNIT-COLES
WITH
Gasoline-Electric Drive*

Two UNIT-COLES mobile cranes are used in the International Harvester Tractor Works yard for handling unmachined parts and finished components.

the MOST ECONOMICAL yard crane you can own!

Saves Money through Maximum Space Utilization— Because of its short tail swing, short wheel base, and tight turning radius, a UNIT-COLES has superior close-quarters maneuverability. The high pivotal point of the cantilever-type boom allows *this crane* to work closer to stacks, in less aisle space, and to stack higher. With a UNIT-COLES at work, a smaller yard can handle your storage. Accurate, safe travel along narrow aisles is guaranteed by a reversible steering mechanism which provides "normal" steering wheel movement regardless of position of the crane's super structure.

Saves Money with Gentle Handling — UNIT-COLES' clutchless variable voltage electric transmission gives unmatched smoothness and precision. Each crane function has its own electric motor, supplied by an engine-driven generator. Independent or combination operation of load-hoist, boom-hoist, swing and travel is possible. Controlled power lowering permits the operator to position load accurately, easily and gently.

Saves Money by Saving Fuel—Because of the electric transmission, a UNIT-COLES uses less than half as much fuel as a clutch-operated crane. This machine runs on one gallon of fuel per hour; fuel savings of up to $1,000 a year have been reported by owners. Fuel consumption is reduced because the crane's engine is not governed at a constant high speed; power is developed only as it's needed.

Saves Money on Maintenance — Hundreds of wearing parts found on standard lift cranes are eliminated in a UNIT-COLES. There are no clutches, no change gears, no power-transmitting chains or sprockets. A UNIT-COLES needs only a fraction of the adjustments required by a friction-clutch-type crane.

All this, with Safety and Simple Controls — "Fail-safe" automatic braking and "dead-man" type controls on all crane motions, automatic load-limiting devices, and boom and hook position-limiting switches combine to make a UNIT-COLES the "world's *safest* crane."

A Full-Vision cab increases the operator's view of entire work area. Finger-tip control makes operation as instinctive and effortless as turning on a light switch . . . allows a new operator to become "fully trained" in a matter of minutes.

UNIT-COLES offers a complete line of mobile cranes—ranging from 5 to 55 tons. For details and the name of your nearest dealer, write today.

THE WORLD'S SAFEST CRANE

UNIT-COLES

UNIT CRANE & SHOVEL CORP.
6717 W. Burnham Street
Milwaukee 19, Wisconsin

UC-45

*Diesel-Electric also available.

Circle **102** on Reader Service Card

Circle 29 on the Reader Service Card

Increase Storage Capacity with a C-F Lifter

Here's 1 man—a C-F Lifter and an electric hoist handling 5 ton packs of sheet steel with speed, safety and economy. One C-F Lifter handles a wide range of sizes . . . adjustments are made by the operator in a few seconds, permitting the Lifter to shift from wide to narrow sizes in a few seconds. Made in capacities from 2 to 60 tons.

Bulletin SL-28 shows you how to cut handling costs. Write for it today.

CULLEN-FRIESTEDT CO.
1320 South Kilbourn Avenue • Chicago 23, Illinois

PRODUCT NEWS

Low Lift Pallet Trucks

Company's line includes two capacities: 2,500 and 4,500 lb. Widths: 20½" and 27". Forks come in 3 standard lengths: 36, 42, and

48". You have a choice of rubber or steel wheels, or polyurethane wheels for special applications. Features include: hydraulic component engineering, precision tooling, and high strength materials.

The Prime-Mover Co.

Circle 307 on Reader Service Card

Continued on page 84

PUMPS most anything* **THAT POURS!**

*A few exceptions. Write for approved list.

Take the risk and waste out of liquid transfer! This rugged Tokheim Hand Pump, with alternate diaphragms, handles most anything from diesel oil to acetates—safely, quickly, without spillage. Eliminates fire hazards and accidents, aids good housekeeping. Accelerates production, too. Pumps 20 gallons per 100 strokes. Get list above from your Tokheim dealer, or write direct today.

General Products Division
TOKHEIM CORPORATION
1668 Wabash Avenue Fort Wayne 1, Indiana

Subsidiaries: GenPro Inc., Shelbyville, Indiana; Tokheim of Canada, Ltd., Toronto, Ontario; Tokheim International, A. G., Lucerne, Switzerland

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OPEN ANY FREIGHT CAR DOOR IN 20 SECONDS OR LESS with the

NOLAN SINCE 1900

ONE-MAN CAR DOOR OPENER

Write for complete details and railway products catalog

ONLY **$45.00** F.O.B. Bowerston

The Nolan Co., 110 Pennsylvania St., Bowerston, Ohio

Circle 74 on Reader Service Card

PAYLOADER users say:—

"The maintenance on our two Model H-25's has been lower than on any loader previously used."

"Our H-25 has proved to be a real workhorse—ruggedly constructed for continuous, dependable production."

"The H-25 has now worked 2 years with no lost production time. We find PAYLOADER equipment fast and efficient with low operational maintenance cost."

"H-25 gives maximum production output under ideal or adverse conditions."

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Illinois

Want low maintenance?

All PAYLOADER tractor-shovels are not exposed to dusty, dirty conditions, but many *are*. This is why Hough engineers take extra effort to design maximum production protection into all PAYLOADER models.

For example, this Model H-25 has dual-filtering of engine intake, individual cartridge-type filters on all three oil systems — for the engine, the hydraulics, and the torque-converter/power-shift transmission. Service brakes, hydraulic system, generator, distributor and ignition and starter switches are all sealed. In addition, more than 100 "O" rings and other seals are used on the hydraulic and mechanical systems to keep oil and grease *in* and dirt *out*.

Whatever size of PAYLOADER tractor-shovel you need, you can be sure it is designed with this same attention to production insurance. Your Hough Distributor will gladly show you how these high-production and low-maintenance features can "ease the profit squeeze" of your bulk handling.

THE FRANK G. HOUGH CO., 731 Sunnyside Ave., Libertyville, Ill.

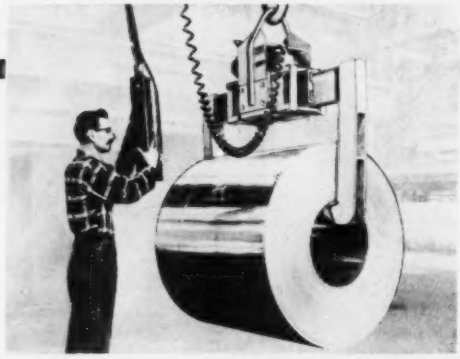
Send "Industrial Materials Handling from A to Z"

7-A-1

Name
Title
Company
Street
City State

Circle **55** on Reader Service Card

Circle 65 on Reader Service Card



HANDLE COILS with PUSH-BUTTON EASE!

MANSAVER style 1362 Motor - Driven Coil Grab provides fast, safe, low-cost handling; the compact, telescoping-leg design and constant, low-headroom, permit maximum utilization of storage area. The straight-line leg motion insures proper load engagement without lateral pressure on coil edges.

MANSAVER Coil Grabs are offered in all capacities and ranges. Send us your specifications for prompt quotation.

MANSAVER INDUSTRIES, Inc.

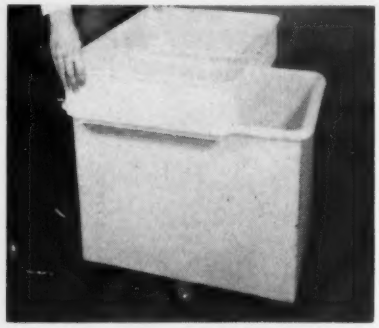
3103 East St.,
New Haven, Conn.

Also Manufactured in England by George W. King Co. and in France by Ets. Dujardin et Cie.

PRODUCT NEWS

Containers Convert to Floor Trucks

Molded caster bolts in the bottom of rectangular containers convert them to versatile floor trucks. The six-



bushel-capacity truck shown has a polyethylene body. If you want additional carrying capacity, you can use the cover as shown. Container is made by special Thermofusion process.

Industrial Products Div., Rubbermaid, Inc.

Circle 308 on Reader Service Card

Continued on page 86

On production line...

or one at a time...

FISCHBEIN®

BAG CLOSING EQUIPMENT

saves *time* and *money!*

For fast, secure closing of bags in any production application, you can depend on efficient, low cost FISCHBEIN BAG CLOSING EQUIPMENT... a complete line ranging from completely portable to fully automatic production line machines. Fischbein equipment performs reliably on all kinds of textile or paper bags.

WRITE FOR COMPLETE CATALOG—FILE OF FISCHBEIN BAG CLOSING EQUIPMENT

DAVE FISCHBEIN CO. Dept. 48
2720 30th Avenue S., Minneapolis 6, Minn., USA

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Thousands in daily use

ELECTROLIFT

WORM-DRIVE HOISTS

Adding a hoist or replacing a system? It will pay you to investigate the ElectroLift worm-drive unit first.

Extremely simple to operate, ElectroLift hoists in ¼ to 10-ton capacities feature enclosed worm gearing and motor for clean, quiet operation . . . long, trouble-free operating life, thanks to quality components and materials... compactness for operation in close headroom . . . automatic or manual actuation . . . and safe, sure braking action.

For the model, speed and operation best suited to your needs, consult your classified directory for the nearest ElectroLift representative.

7989

ELECTROLIFT

204 Sargeant Avenue **Clifton, N. J.**

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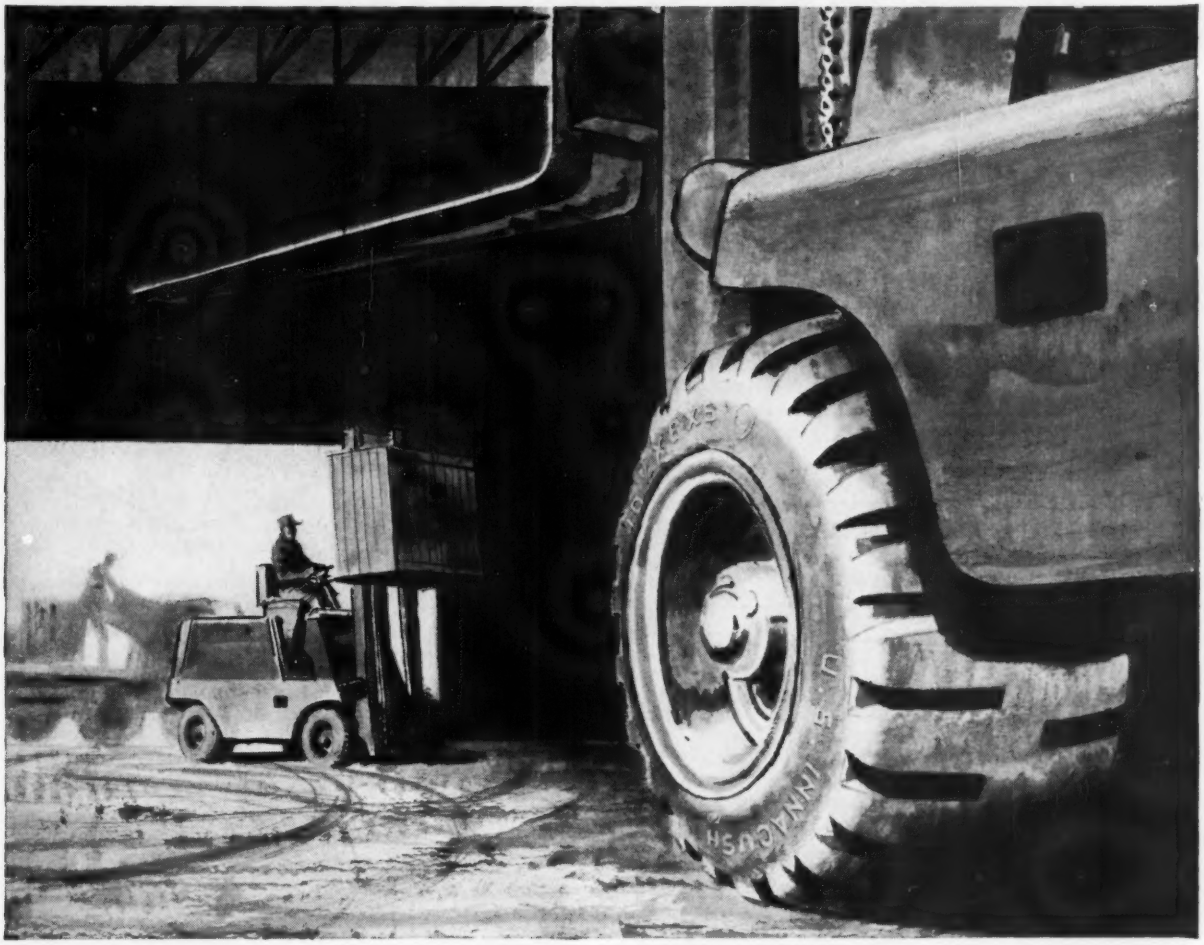
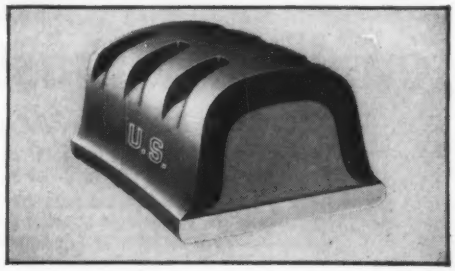
CUSHIONED shock-absorbent inside TOUGH cut-resistant outside



CHOICE OF LEADING INDUSTRIAL TRUCK MAKERS FOR SOFT RIDE, HARD WEAR—U.S. ROYAL INNACUSH!

Material-handling equipment manufacturers who know most about industrial tires prefer U.S. Royal Innacush. They realize this great U.S. Royal has the only successful two-stock construction. Fully cured cushioned stock inside stays soft for the life of the tire. Don't let substitutes fool you—tires with semi-cured cores harden in use, lose their cushioning. Tough-tread stock outside to defy cuts, shrug off floor hazards. Users have found U.S. Royal Innacush actually *doubles* wear life, saves money like no other industrial tire. Try it yourself, in pressed-on or demountable type.



Don't forget to specify "U.S. ROYAL" on your new equipment.

U.S. ROYAL SAFETY 1st TIRES

United States Rubber

Rockefeller Center, New York 20, New York

Mr. W. J. Shalley
Industrial Tire Dept., U.S. Rubber
Rockefeller Center, New York 20, N. Y.
Please rush me your complete industrial tire manual.

Name_____

Address_____

City & State_____

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Circle 54 on Reader Service Card

ON-TIME maintenance cuts down-time DOWN

Hobbs

INDUSTRIAL HOUR METERS

For use with gasoline, electric and diesel powered equipment

PLANNED MAINTENANCE based on actual hours of use is the answer to more GO-time and less DOWN-time on your equipment!

TRUE RUNNING TIME gives you a realistic basis for renting and leasing, service contracts, buying and selling.

HOBBS electrical timing instruments are the basic source for the facts you need—revolution counters cannot do the job. Distributors in principal cities . . . WRITE FOR CATALOG 600.

John W. Hobbs Corporation

A DIVISION OF STEWART-WARNER CORPORATION

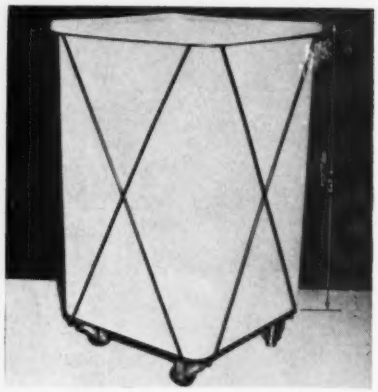
2061 YALE BLVD. SPRINGFIELD, ILLINOIS

Symbol of SW Excellence

PRODUCT NEWS

Large Size Plastic Containers

Company's line of plastic containers for material handling come in many different stock sizes, cylindrical



and rectangular. Now available in large sizes due to a special Thermofusion process. The polyethylene containers are waterproof, resistant to chemicals, can be steam cleaned or sterilized for food storage. Containers

Continued on page 88

engine exhaust . . .

"made safe enough for a baby"

CATALYTIC PURIFIERS

Practical, fully tested and approved, will make your industrial engine exhaust safer. Dangerous Cancer Suspect Hydrocarbons and Carbon Monoxide reduced to safe levels will increase employee productivity; increase profits. Oxy-Catalyst Exhaust Purifiers will convert gasoline, LP gas or diesel exhaust into harmless vapor for safer indoor operation of lift trucks, sweepers, engine-generators, construction and mining equipment.

Also inquire about our Fume and Odor Elimination Equipment for industrial processes.

OXYCAT

AIR POLLUTION CONTROL

OXY-CATALYST, INC.

Berwyn, Pa.

Catalyst for cleaner, safer Air

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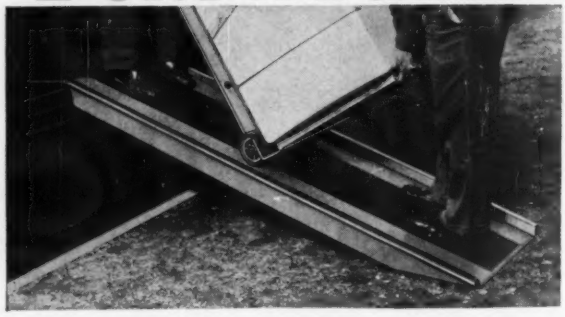
PORT-A-RAMP®



LIGHT-WEIGHT — NON-SKID WALKWAY PORTABLE — Brooks & Perkins *light-weight* Port-A-Ramp is the most improved portable ramp on the market today. Port-A-Ramp features a non-skid walkway which allows easy movement of material and increases safety. Port-A-Ramp is another member of the fine family of Brooks & Perkins . . . *Manufacturers of Magnesium and Aluminum Non-Powered Materials Handling Equipment.* Other products include: Dockboards—Hand Trucks—Stock Picking Trucks—Yard Ramps—Pallet Dollys—Pallets—Platform Trucks—Knockdown Racks. Write today for complete information on the Port-A-Ramp or any of the other products listed.

® REG. TRADEMARK

b+p

61-MH-6

BROOKS & PERKINS, INC.

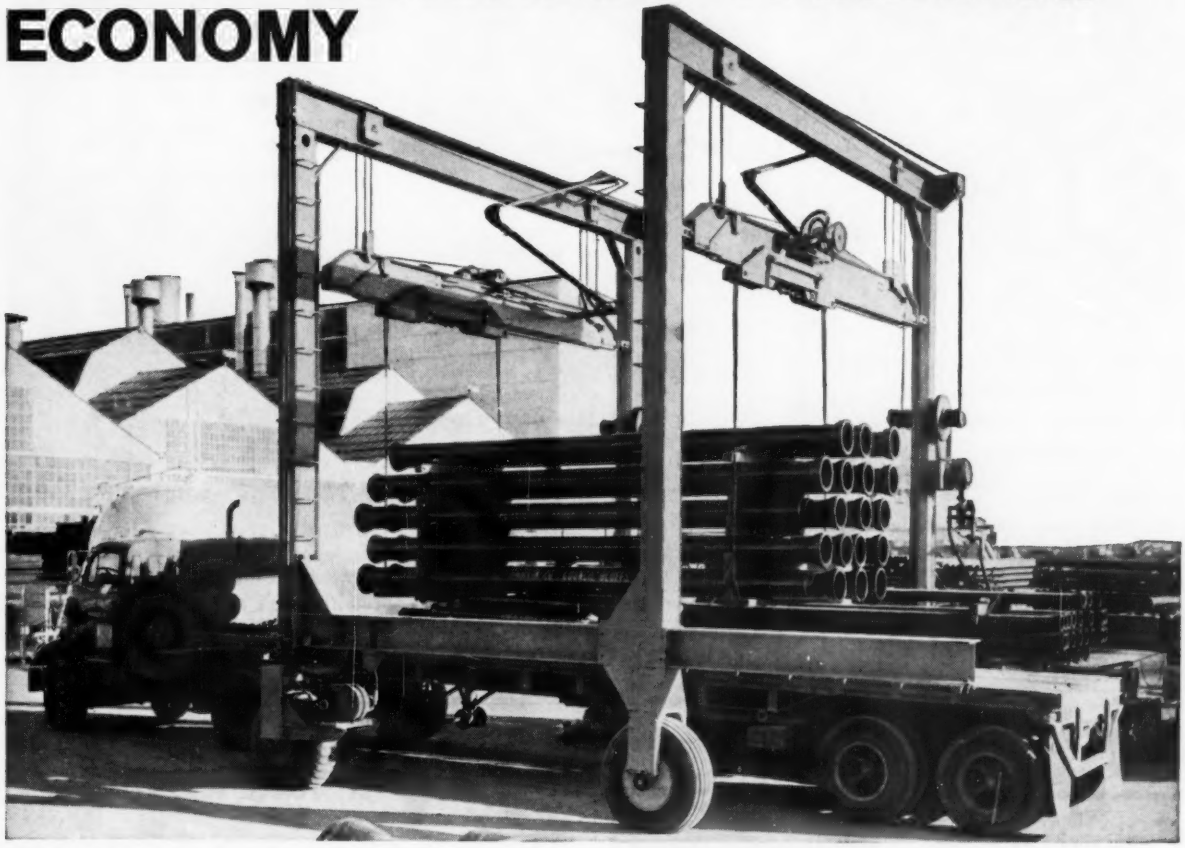
1938 W. Fort Street • Detroit 16, Michigan

Tel. TA 5-5900

Offices in Washington and New York

Circle 11 on Reader Service Card

TRAVELIFT...THE VERSATILE NEW WAY TO MATERIALS HANDLING ECONOMY



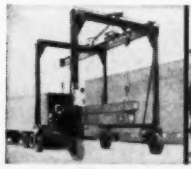
Around the world, from South America to Canada, from Iran to Hawaii, Travelift is on the move in Marinas, Prestressing Plants, Pipe Plants, Steel Plants, and in Transportation and Railroad Industries for Piggybacking and Container Handling. Every day Travelift is saving someone time and money in a new way. It can do it for you, too.

Travelift gives you the ultimate in versatility.

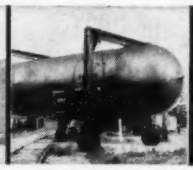
- It is completely self-propelled.
- It handles loads from 7 to 50 tons.
- Single or multiple lifting points.
- Travelifts can traverse and even pinpoint a load to spot it on a dime, gently.
- What's more, every operation is hydraulically controlled by one man from a full-view platform with every control under his thumb for complete command.

Take a look at your present materials handling equipment. Are you getting this all around versatility or are you about to write for full details on this new way to materials handling economy?

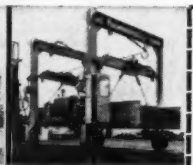
Over 17 models to choose from — at a lower cost than you think. Most models cost less than $1,000 per ton of lifting capacity . . . at no sacrifice in quality.



Caution! Too fragile for fork trucks, handle with Travelift. Here tons of wire cloth are loaded into a closed trailer.



Travelift carries this large tank smoothly and safely even over rough terrain.



Travelift combines brute strength with flexible handling to move this fabricated member.

Travelift Division of DROTT Mfg. Corp.
Sturgeon Bay, Wisconsin

CLIP AND MAIL TO:

TRAVELIFT, A Division of Drott Mfg., Corp.
Sturgeon Bay, Wis.

Gentlemen, please RUSH full information on Travelift.

Name .....

Company Name .....

Address .....

City ..... **Zone** ..... **State** .....

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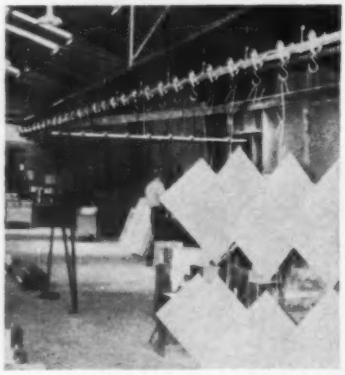
Circle 37 on Reader Service Card

ECONO

Overhead Trolley Conveyors



For
Retailers · Wholesalers · Manufacturers

To Aid The Above In

STORAGE - PROCESSING
TRANSPORTATION
ASSEMBLY OPERATIONS

Investigate today this versatile, efficient low cost conveyor.

Write for Literature and Prices

ECONO MFG. CO.,
Celina, O.

PRODUCT NEWS

can be placed in frames with roller mounting, or be equipped with handles, lids, or legs.

SinTrex Division
Amos-Thompson Corp.

Circle 309 on Reader Service Card

Lift is Compact, Portable

Scissors lift raises a ton from 4-in. height to 42 in. in 35 seconds. Lowers in 10 seconds. Comes with 18 x 24 in. or 24 x 48 in. platform. Half-horsepower pump for hydraulic system runs on 110 v. current. Has pedal controls. Wheels and jack handle, for complete portability, optional. Used by printers, paper converters, food processors, warehouses, etc.

American Manufacturing Co.

Circle 310 on Reader Service Card

Staggered Line Won't Jackknife

This low pressure, live roller conveyor simplifies problems associated with accumulation of cartons and crushable commodities. Company says even badly staggered commodities can be accumulated under pressure on this new conveyor without jackknifing. The pressure exerted on the accumulated commodities is only 3½ percent of commodity weight instead of the usual 12 percent. And the new conveyor handles units with a wide range of mixed sizes and weights. When the accumulated commodities are released, the entire line moves forward immediately. No manual adjustment of the belt actuators is needed. Standard says that only 50 percent of the usual horsepower

drives this live roller. Controlled Pressure Conveyor comes in these widths: 10½", 14½", 16½", 20½", 26½", 32½" and 38½".

Standard Conveyor Co.

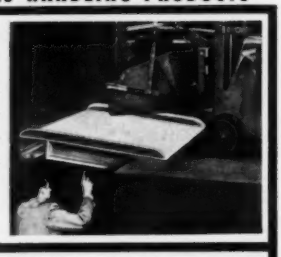
Circle 311 on Reader Service Card

magcoa

THE OLDEST TRADENAME IN LIGHT METALS MATERIALS HANDLING PRODUCTS

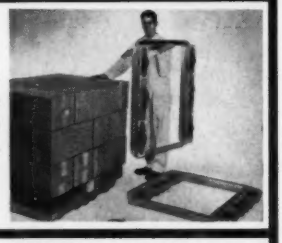
MAGNESIUM DOCKBOARDS

For safe, skid-proof truck and rail loading! Rugged but lightweight — one man can position. Engineered to fit your dock and equipment. Most modern economical dockboards available.



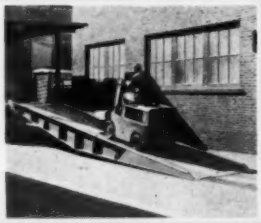
PALLET DOLLIES

Free your lift trucks — end loading bottlenecks! Magnesium — light and durable — at no premium. Magcoa rollers give total maneuverability. 18 standard sizes — capacities to 4000 lbs.



PORTABLE YARD RAMPS

Solve your ground level loading problems! 32 std. mobile models — capacities to 100,000 lbs. Engineered to accommodate all equipment, load and height requirements.



Write today!

MAGNESIUM COMPANY OF AMERICA
155 S. E. 10th Ave. TUxedo 7-8117 Hialeah, Florida

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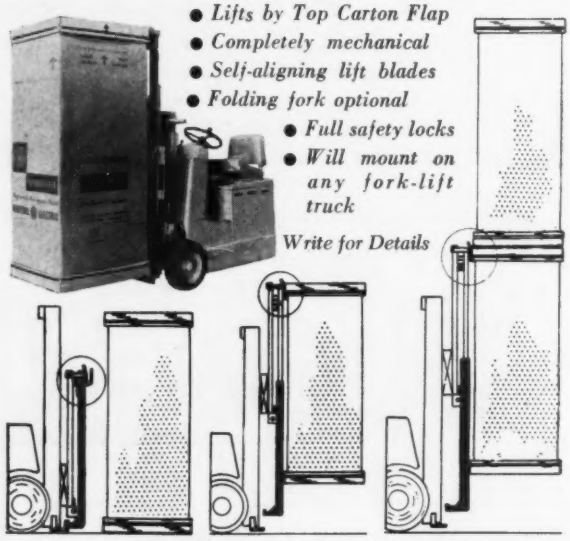
For Palletless Handling of "Folded Cap" Cartons

LIFT-A-PLIANCE lift truck attachment

- *Lifts by Top Carton Flap*
- *Completely mechanical*
- *Self-aligning lift blades*
- *Folding fork optional*
- *Full safety locks*
- *Will mount on any fork-lift truck*

Write for Details



APPROACH PICK-UP TRANSPORT

BASILOID PRODUCTS CORPORATION
ELNORA, INDIANA

Circle 9 on Reader Service Card

Read this . . . Order this . . . Install this . . .

Save up to ⅓ the cost of your next conveyor with Handidrive components

Why pay big premiums for unnecessary custom engineering? Order your next conveyor mail order style . . . right out of STANDARD CONVEYOR's new *Handidrive* Handbook. Get fast delivery right off the shelf . . . save up to ⅓ the usual cost.

How? Using this valuable new Handbook, you can plan your own installation, order the components you need from factory stock, and then assemble them yourself with simple tools to save on erection costs. And, should you need help, our conveyor specialist in your city will be happy to give free advice on layout, ordering, prices and installation.

In-stock *Handidrive* components include gravity and power roller sections, belt sections, drive units, curves, supports, hangers, tapered sections, guardrails, feed sections, diverters —everything you normally need for an efficient, low-cost conveyor installation.

Moreover, all components are interchangeable to simplify future alteration of your *Handidrive* system to meet changing material handling requirements.

Check these Standard-ized Handidrive "right-off-the-shelf" benefits

- Lower initial cost . . . you buy only what you need!
- Inexpensive to alter or add to.
- Stock items cost us less to build . . . cost you less to buy!
- The most complete line of fully integrated units all from a single source.
- Ready to ship as fast as we can process your order!

Here's the Handbook *that tells you exactly what to do to cut costs with pre-engineered HANDIDRIVE conveyors. Send for your free personal copy now. Just fill in the coupon, attach to your letterhead and mail. Do it today!*

Standard Conveyor COMPANY

Sales and Service in Over 40 Cities
Look in your Yellow Pages under "CONVEYORS"

STANDARD CONVEYOR COMPANY
302-G Second Street, North Saint Paul 9, Minnesota

Please send me your new HANDIDRIVE Conveyor Handbook.

YOUR NAME_____

YOUR TITLE_____

Circle **93** on Reader Service Card

ASSOCIATIONS

AMHS Newly elected officers of the Mid-Hudson Chapter are: W. Kenneth Kane, president; Thomas F. Gorman, vice president; Thomas Peirce, treasurer; Lawrence H. Sullivan, secretary; Herbert P. Crispell, national director. New directors are: Joseph A. Elton, James A. Ebmeyer, Royce W. Day, and Stanley T. Smith.

Los Angeles Chapter held its first annual Fork Lift Truck Driver Training Program May 11-12. The program replaced the Annual Fork Lift Truck Rodeo. Students were enrolled for the two day course. Morning sessions were devoted to class room study, and afternoon sessions to obstacle driving. Students were graded, and reports sent to their supervisors. C. R. Blomquist of North American Aviation was chairman.

The New Jersey Chapter has awarded a life membership to Herbert H. Lemmerman, the chapter's

present secretary treasurer. Photograph shows Past President Richard K. Hopkins, now the chapter's honors and awards chairman, making the presentation to Lemmerman (right). The New Jersey Chapter has awarded only two other life memberships, both to past national presidents — Wally Hall and Al Van Benschoten.

SPHE The 1961 SPHE National Packaging and Handling Competition held annually by the Baltimore Chapter will be Nov. 13 and 14. Top award in the competition merits the Harold Jackson Trophy. First, second and third place awards are made in each of eight classifications. Entry forms, rules and regulations can be obtained from SPHE National Headquarters, 14 E. Jackson Blvd., Chicago 4, or from J. L. Krager, Jr., chairman, National Packaging Competition, c/o Radio Corporation of America, Defense Electronic Products, Building No. 1-6, Camden 2, N.J. A SPHE Seminar will be conducted during this 7th Annual Eastern Packaging and Handling Show in Baltimore. Four sessions will be held.

Northeastern Ohio Chapter's officers for the next two years are: P. F. Schreck, president; J. E. Auen, vice president, material handling; Paul Stump, vice president, packaging; George Chizmar, treasurer; J. F. Spencer, secretary; E. P. Patrick and C. F. Sprague, directors. Spencer is associate editor of MATERIAL HANDLING ENGINEERING.

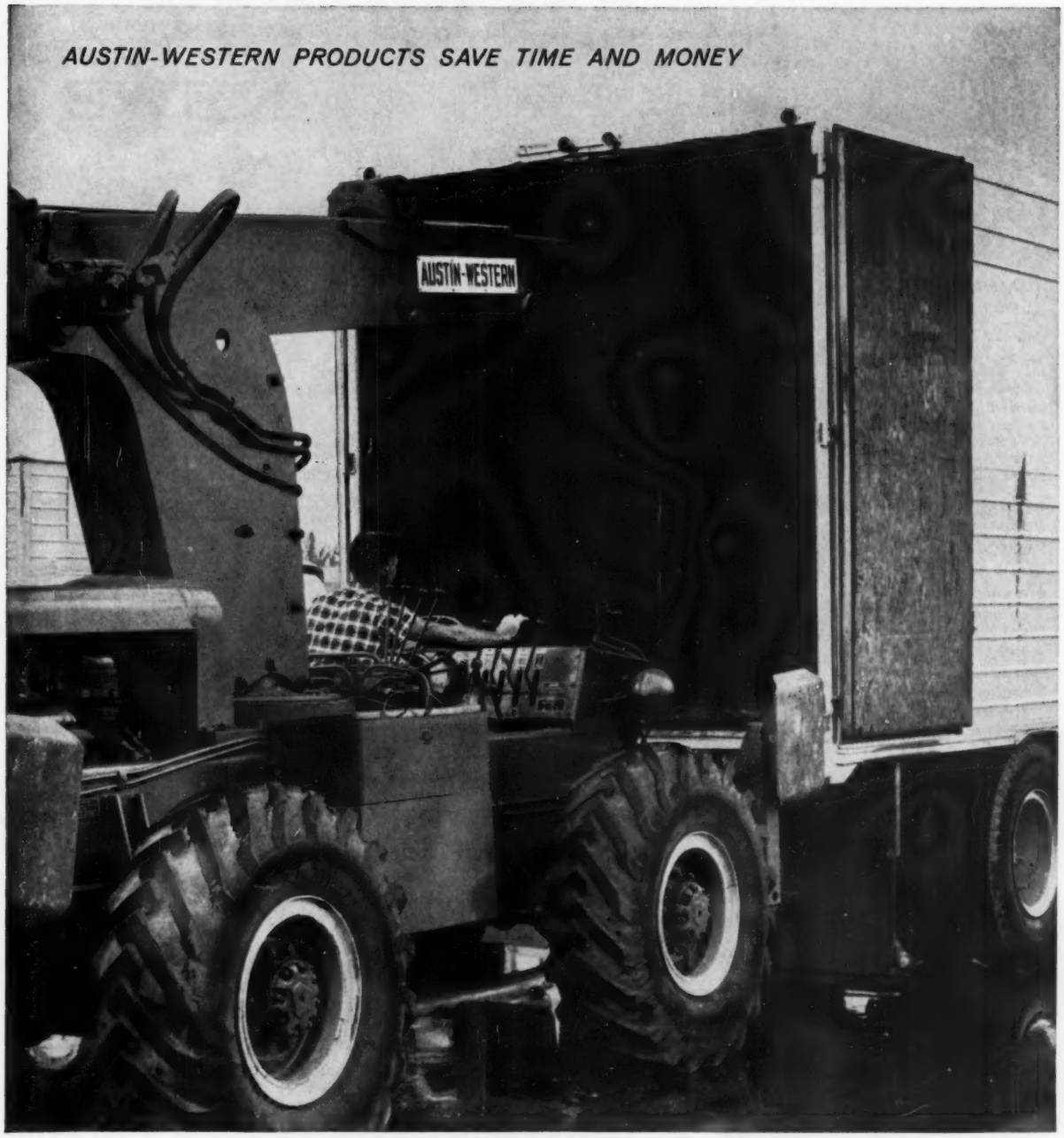
Southern California Chapter has brought in more new members since Jan. 1, 1961 than all other chapters of SPHE combined. The chapter has recently introduced its "Achievement of the Month Award." A personally engraved walnut desk card file is given for the best idea, design, material, process or application submitted in the field of Industrial Packaging and Handling. Members attending the monthly meeting voted.

NWBA The 1961 summer meeting of the National Wooden Box Association will be held July 13-15 at the Cavalier Hotel, Virginia Beach, Va. The Association recently held its 62nd annual meeting at the Boca Raton Hotel, Boca Raton, Fla. F. Perry Smith, Jr. was elected president of NWBA, succeeding H. S. Dunning.

CFTMA Truck manufacturers have been sent a copy of the Caster and Floor Truck Manufacturers' Association revised standard for towline trucks. The standard was prepared in cooperation with the Regular Common Carrier Conference, an organization representing users of towline trucks. The association enclosed a letter with the standard, which members were to fill out, which indicates whether or not they are producing towline trucks according to CFT-PCI-59 Standard. CFTMA plans to send a list of all its members who are producing standard towline trucks to the Regular Common Carrier Conference, and intends to encourage users to look for an Industry Standard label when they purchase towline equipment.

Sample cargo cages by Nutting Truck and Jakes Foundry were provided for a June 5 Regular Common Carriers meeting in Chicago. During this week, the Cargo Cage Committee, the Operations Council, and the Board of Governors of RCCC met. The full size sample trucks were on display for examination.

MHEDA "Engineering Trends – Costs and Fees" moderated by H. E. Little, president of Robert Abel and Co., Inc. was one of the main topics under discussion at the June National Convention of MHEDA. Paul Rolnick, vice president of Industrial Publishing Corporation, was on this panel. He presented his part of the discussion on the material handling industry. Other panelists were Samuel H. Hawkins, chairman, Colorado Registration Board of Professional Engineers; Sears L. Hallet, vice president and publisher, Modern Materials Handling; and Michael A. Fanelli, vice president, Hoist Equipment Co.



A-W crane loads truck vans and rail cars without hand-shoving!

Save hand labor and you automatically save time and money. And you can do it by using an Austin-Western hydraulic crane for countless materials handling jobs.

Hydraulically controlled boom extends and retracts to reach into tight spots with low clearances to eliminate shoving loads into place by hand; works in continuous full circle. All-wheel steering means extreme maneuverability; all-wheel drive assures smooth power. The A-W moves easily in city traffic at truck speeds. Optional attachments help make it the most versatile handling equipment you can own.

Available in 5 models. Capacities to 11 tons. Self-propelled and truck or stationary mounting. Write us today for more information.

See our catalog in Sweet's Plant Engineering File

BALDWIN BLH LIMA-HAMILTON

Austin-Western
Construction Equipment Division
AURORA, ILLINOIS

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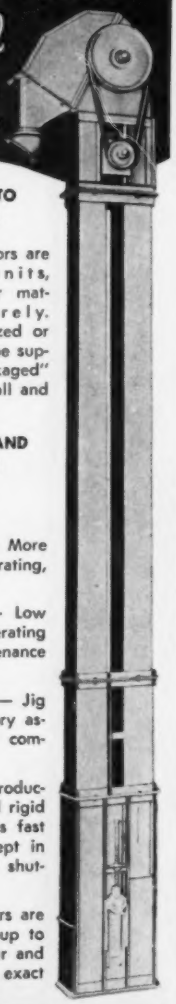
FOR MATERIALS ON THE MOVE

Universal

BUCKET ELEVATORS & BELT CONVEYORS



ARE ENGINEERED TO MEET YOUR NEEDS

Universal Bucket Elevators are designed as compact units, that will elevate your materials smoothly and surely. Standard steel, galvanized or stainless elevators can be supplied in complete "packaged" units . . . ready to install and put to work.

THROUGH RESEARCH AND MODERN PRODUCTION METHODS UNIVERSAL OFFERS YOU . . .

ADVANCED DESIGN — More compact, cleaner operating, smoother running.

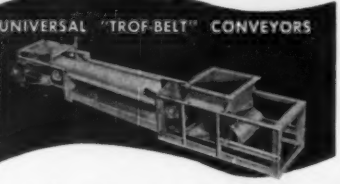
GREATER ECONOMY — Low initial cost, low operating cost, minimum maintenance and repair.

EASIER INSTALLATION — Jig assembly at the factory assures precision-fitted components.

QUICK DELIVERY — Production line methods and rigid quality control assures fast delivery. Parts are kept in stock to avoid costly shutdowns.

Universal Bucket Elevators are available for capacities up to 3750 cubic feet per hour and may be obtained for any exact height.

UNIVERSAL "TROF-BELT" CONVEYORS



. . . offer a low cost efficient method of moving all free flowing materials. Low initial cost, less maintenance and trouble-free service are made possible because of the smooth rollerless design.
There's a Universal "TROF-BELT" conveyor designed to meet your specific needs in capacities up to 3,750 feet per hour.

GUARANTEE

Universal guarantees complete satisfaction within 60 days or full purchase price will be refunded. Materials and workmanship guaranteed for one year.

Send For Free Literature and Prices

Universal HOIST CO.

Box 130 Cedar Falls, Iowa

Circle 103 on Reader Service Card

mhe INDUSTRY NEWS

GE Appoints Sales Manager

Jack M. Delfs has been named manager of materials handling industries sales for the General Electric Co.

Delfs has been with GE since 1939. His most recent position was manager of general machinery industry sales for the Apparatus Sales Division.

Whitbread Appointed VP of Motec Industries

Bert F. Whitbread has been appointed vice president of Motec Industries for the Mobilift Materials Handling Equipment, Mopower Construction Equipment, and Moline Automotive Divisions of the firm.

Whitbread

Whitbread joined the company in August, 1960 as sales manager for construction equipment. He has 25 years industrial sales experience. He is a member of the Associated Equipment Distributors, American Road Builders Association, and Construction Industry Manufacturers Association.

Sherwood Named VP-Sales

Edward J. Sherwood has been elected vice president—sales and a member of the board of directors at Youngstown Steel Car Corp.

Thomas J. Healy was appointed assistant secretary and treasurer. Sherwood had been sales manager of YOCAR since 1955. Healy comes to the company from Thompson Ramo Wooldridge Co.

Executive Changes At American Pulley Co.

Walter C. Bass has been elected president of American Pulley Co.,

Continued on page 94

JARKE MODULAR STORAGE SYSTEMS

Increase Storage Efficiency . . . Save Time . . . Cut Costs

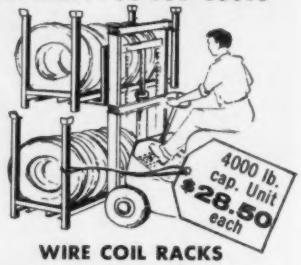
"MINI-MODULE" PRE-FABRICATED STORAGE RACKS

2500 lb. cap. Unit $6.30 each

Easy To Handle • Quickly Set Up Or Taken Down

For Permanent Or Temporary Storage

Jarke Mini-Modules give you storage when you want it, where you want it. Easily set up or taken down, no bolts, no tools, no fittings. Special "nesting" caps provide fast stacking and insure rigid, no-slip interlocking tiers. Sturdy steel construction. Lightweight. Four standard sizes. Send for details now!



4000 lb. cap. Unit $28.50 each

WIRE COIL RACKS

Designed for stacking coiled material, these racks have four-way entry for fork truck, open ends for ram-type deposit of coils. Nesting caps insure fast easy stacking. Heavy-duty steel construction.

Std. Unit $36.90 each

PORTABLE BAR RACKS

Unique crane grab permits load centering and rapid fool-proof engagement. Automatic grab also available. Assorted standard sizes. Specials to order.

JARKE MANUFACTURING COMPANY

6333 Howard St.
Chicago 48, Illinois

MODULAR STORAGE SYSTEMS FOR METAL INDUSTRY • STEELMOBILE

Circle 63 on Reader Service Card

100% MORE SECURITY IN 50% LESS TIME WITH THE BOSTITCH® "GOLDEN BELT" STAPLER

The Bostitch "Golden Belt" stapler, used to close tops and bottoms of 275-lb.-test telescope corrugated boxes, has cut time in half compared with the former method used by the Crescent Metal Products, Inc. of Cleveland, Ohio.

The increased efficiency is due to the lack of time-consuming adjustments for the various thicknesses of C-flute corrugation in the cartons. According to the company, "100% more security" has been attained over the old method of shipping its commercial food industry cabinets, racks, conveyors and utility carriers.

Your Bostitch Economy Man – one of 350 in 123 U. S. and Canadian cities – can probably save time, money and materials for you, too.

For cost and speed facts on setting up and closing your cartons, call him. He's listed under Bostitch in your phone book or you can write the address below.

Fasten it better and faster with

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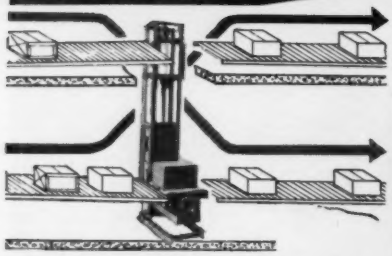

This *single* Weld-Bilt Automatic Conveyor-Lift Elevator—plus two powered Feed Conveyors and Discharge Conveyors—handles, automatically, a greater capacity than two ordinary freight elevators and at much lower cost! Automatic "memory" controls do all the work. Easily adapted to completely automatic conveyorized feed, with synchronized loading and discharge. Get the whole story now. Write for bulletin E-557.

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INDUSTRY NEWS

Division of Van Norman Industries, Inc., and Vernon Marsh has been elected vice president.

Bass

Marsh

Bass joined American Pulley in the spring of 1959, as general sales manager. In early 1960, he was advanced to executive vice president and director of sales. Before joining the company, Bass was sales manager of Foote Brothers Gear and Machine Corp.

Marsh joined the company in 1959 with more than 20 years' experience in production and manufacturing methods. His prior position had been general manager of factory operations at Kromex Co., Inc. His most recent position at American Pulley was factory manager.

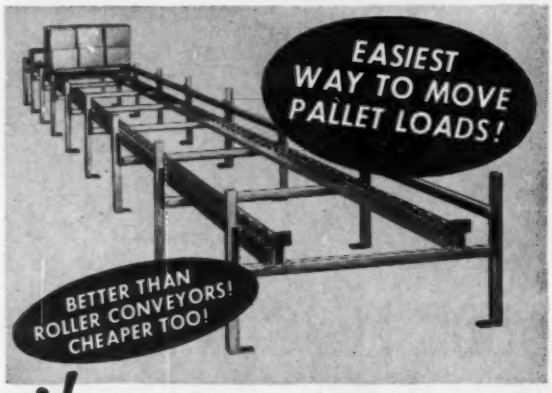
CLASSIFIED ADVERTISING

WANTED MANUFACTURER'S AGENTS

Well established national manufacturer of conveyors, automated handling equipment and storage racks has several desirable open territories in Northern California, Pacific Northwest, Mountain States, and Southwestern States areas. Line includes all types overhead and floor chain conveyors, Power and Free systems, belt and roller conveyors and conveyor components sold as merchandise. Racks include adjustable and fixed storage types, portables, etc. Reply must contain pertinent details of your present operation, lines carried, experience, personnel, facilities and territory desired. Write MATERIAL HANDLING ENGINEERING, Box 7261.

EQUIPMENT WANTED

Used hydraulic hand pallet trucks wanted. Cap. 2500 lb. 27" wide x 48" long forks. Rubber front wheels, Polyurethane load wheels. Write MATERIAL HANDLING ENGINEERING, Box 7161.



New PALLETFLO CONVEYOR

Here's the simplest way to move pallet loads. Palletflo Conveyor is a wheel rail conveyor that handles all pallets—even those with broken or missing boards and protruding nails ride smoothly. Set at a pitch of 5/16" per foot, pallets move by gravity. On level runs, pallets are easily pushed along.

Height and pitch are fully adjustable. Standard parts make it easy to increase conveyor length. It's constructed to take it—with aluminum enameled rails and zinc coated steel frame members and guard rails.

You'll find many uses for Palletflo Conveyors in your plant or warehouse. It's an investment you'll be glad you made.

WRITE FOR CATALOG #701

M-H STANDARD CORPORATION
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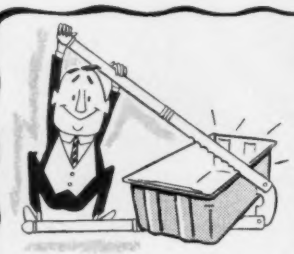

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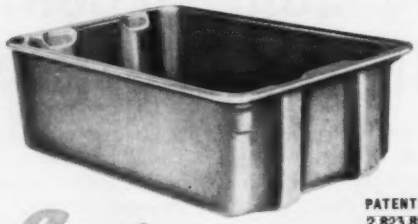

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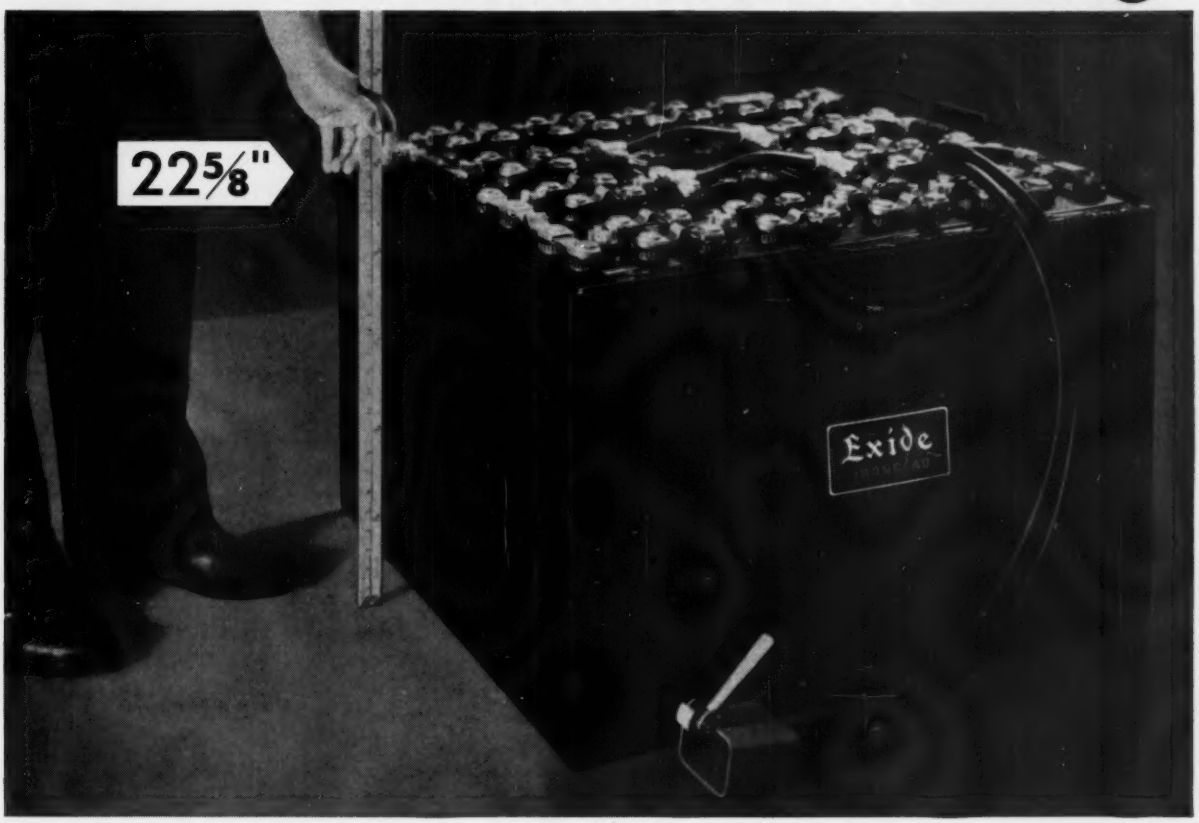
EXIDE POWER PACKAGE

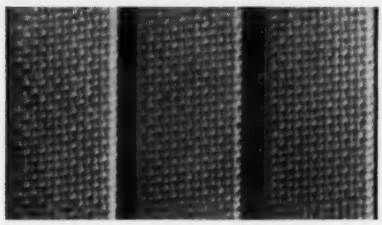
Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa. (ESB)



85 AMP-HR—ONLY 22⅝ in. HIGH!

Here's the new high in battery capacity for electric industrial trucks—the Exide-Ironclad TSC Battery. It is available right now and it will fit in the battery compartments of your present trucks without modification. It conforms to the design thinking for future trucks as expressed by truck manufacturers.

This battery offers a capacity of 85 amp-hr per positive plate—increased from the previous highest available capacity of 80 amp-hr in the Exide-Ironclad TGS—and still with over-all height of 22⅝ in. The length and width dimensions of the battery are also unchanged. Therefore the new battery occupies the same space as present batteries.



New tubing boosts battery capacity

Side view of tubing magnified twice size shows the fine mesh with thousands of pores for easy flow of electrolyte. Holds active material firmly against loss.

A unique feature of the Exide-Ironclad Battery is the tubular construction of the positive plates. With the square-shaped tube, introduced over a year ago in the TGS Battery, Exide made it possible to get higher capacity from each positive plate through greater area in contact with the electrolyte.

Now, in the TSC Battery, Exide introduces woven mesh tubing, still square shaped, but with higher porosity for easier access of electrolyte. This new tubing is able to hold more active material, which, in addition to the higher porosity, results in higher capacity than ever before. The tubing is of a special nonoxidizing material of proven long life in extensive laboratory tests and field applications.

This increase in battery capacity has been achieved without increasing the height of the battery. Thus you can step up the work capacity of your present trucks without the extra expense of modifying the battery compartments. The Exide-Ironclad TSC is still only 22⅝ in. high. Likewise its specific gravity is still only 1.275. Hence battery life potential remains high.

With the introduction of the Exide-Ironclad TSC, Exide now makes it possible for you to match your particular battery power requirements more closely than ever. If you are ready to buy a new truck or new battery now, talk with your Exide representative about how you can get the maximum power for your dollar.

Only Exide offers so broad a range of battery types: Exide-Ironclad, Exide-Powerclad premium flat plate, and Exide Nickel-iron alkaline (invented by Thomas A. Edison). Exide chargers are available in both motor-generator and silicon rectifier types, in sizes to cover all needs. Exide service men are coast to coast, all factory trained in both batteries and chargers.

Make sure you get maximum economy in your battery power. Write Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

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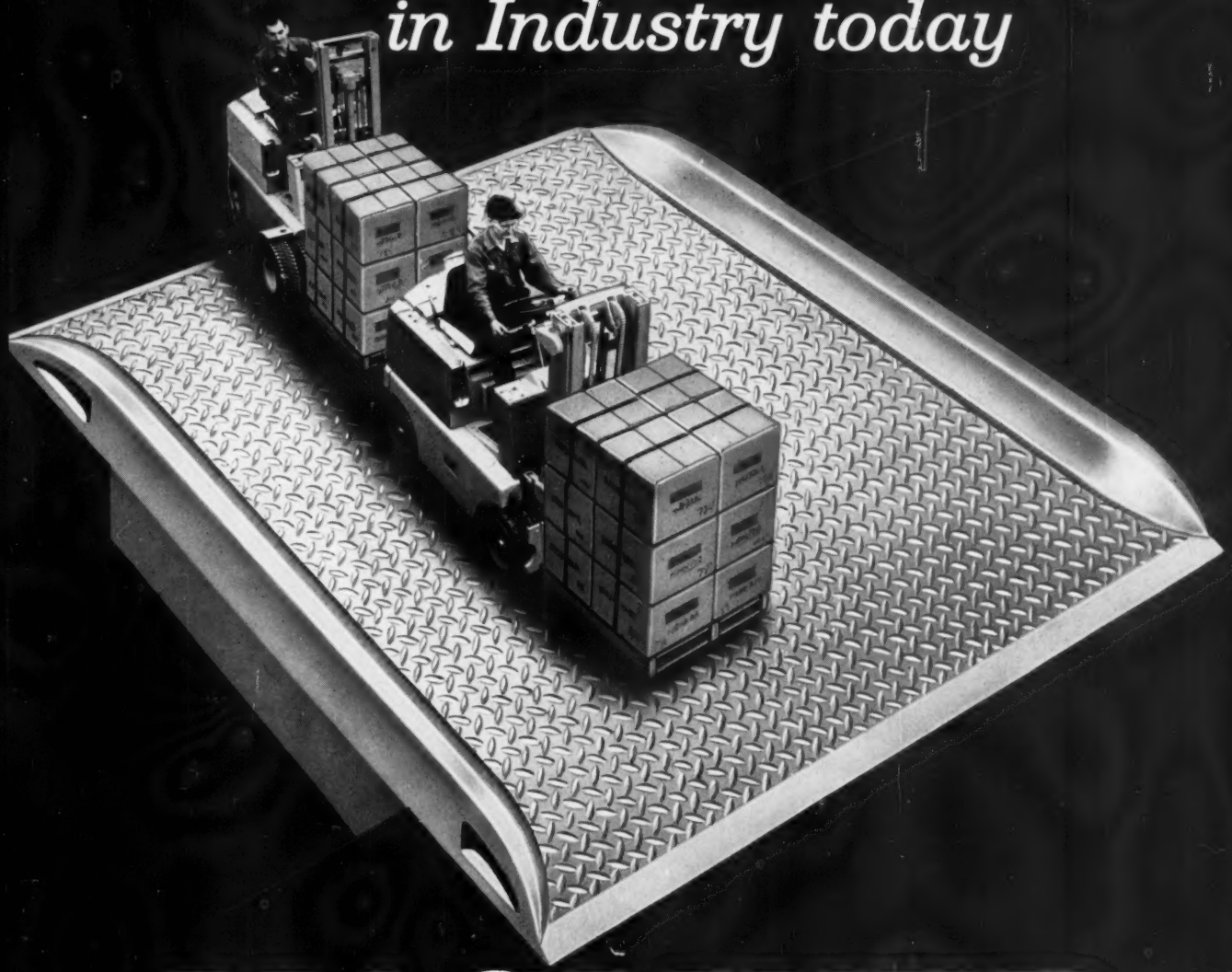

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